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STATE AGRICULTURAL COLLEGE.

To Hon. Oramel Hosford, *Supt. Pub. Instruction:*

Sir—I herewith inclose to you my Annual Report of the Agricultural College of the State of Michigan.

Your ob'd't serv't,

T. C. ABBOT,

President.

REPORT.

No full report of the present organization of the State Agricultural College has appeared in the reports made to the Superintendent of Public Instruction. It will be proper, therefore, to give in considerable detail the Course of Instruction pursued at the College. 1. The College is a professional school, for imparting instruction in the sciences upon which Agriculture and other practical arts of life depend. The course of study, however, is modified and enlarged from a purely professional character, and embraces History, Rhetoric, English Literature, Mental Philosophy, and Political Economy. This is done in accordance with the law of the State. It was doubtless anticipated that the students who went through the course of study at the Agricultural College would not take another course elsewhere. Such studies of an unprofessional character therefore, were introduced into it, as would give the graduate the most complete command of his acquirements in social and civil life. The Course of Study is given below in full.

2. A second characteristic of the School is the Labor System. Each student labors three hours every day. The work is performed under the direction, and, as far as may be, under the eye of the Professors of the College. Although some compensation is allowed for this work, yet the chief object of it is neither profit to the student nor to the College. It is conducted *for the education of the student*, under rules which will shortly be given.

3. There is consequently vital connection between the class-room and the farm, gardens, orchards, and stock. All these, and the management of them, become objects of study to the student. They serve him both as means of illustration, and as fields for practice.

The rules by which these features of the College become realized are as follows:

RULES.

RULE 1. At least one week before the commencement of the term in each year, the Superintendent of the Farm shall present to the President of the College, in writing, a plan of the system of cultivation and management of the farm, proposed for the season, giving in detail the contemplated operations for each field and division. This plan shall embrace:

1. Proposed permanent improvements;

2. The crops to which each field is to be devoted, together with the variety and quantity of seed proposed;

3. The mode of culture, and the kind and quantity of fertilizers proposed for each crop;

4. A detailed and accurate description of any new seed or mode of culture, if any such is proposed, together with a full account of the advantages likely to be derived therefrom.

RULE 2. The Superintendent of the Horticultural Department shall, in like manner, present a plan of operations for his department, giving the details as minutely as possible for each section and subdivision of the gardens and grounds.

RULE 3. The Faculty shall carefully consider the plans presented by the Superintendents, and discuss as fully as possible the principles involved in the proposed methods; and they offer such suggestions and amendments as may seem desirable for perfecting and maturing the same. The plans as perfected and adoped by the Faculty, shall be carried out in practice on the farm and in the gardens, unless modified by the Board of Agriculture when referred to them.

RULE 4. The plans for conducting the farm and gardens, as soon as determined, shall be recorded in full by the Secretary, in books kept in his office for that purpose.

RULE 5. The Professor of Agricultural Chemistry shall present to the Faculty a detailed statement of a proposed system for the management, manufacture and proper preservation of manures, having reference to the best and most economical disposition of the same, and the adaptation of special manures to particular crops.

RULE 6. The Faculty, after a full examination and discussion of the proposed system for the management of manures, shall determine the plan to be pursued, and make suitable provisions for putting into practical operation the plan adopted.

RULE 7. The Superintendents of the Farm and Gardens shall keep a journal of all the work done in each field of their respective departments, and of all transactions connected with the same. This journal shall be transcribed by the Secretary, once a month, into books kept in his office for that purpose. The journal shall embrace:

1. A general statement of the weather at the time of preparing the soil—of putting in the crop—of cultivating the same—during its growth, and at the time of harvesting;

2. A detailed account of the crops raised in each field and in the garden, including a statement of the condition of the soil before cultivation, and during its preparation for the crop; the method of seeding, with variety and quantity of seed used, and its preparation for sowing or planting;

3. Details of the growth of the crops and any circumstances that may have influenced the development or maturing of it.

4. The time of harvesting the crop, the condition in which it is secured, the disposition made of the same—as, where stored, whether sold or not, with the yield and general results;

5. Purpose for which the crop has been cultivated, whether for profit or to test some new variety of plant or method of cultivation.

RULE 8. A committee shall be appointed by the Faculty at the commencement of the term in each year, to prepare and report a series of experiments for the next season, which report shall be presented to the Faculty at its first meeting in October following.

RULE 9. The Faculty shall decide upon the experiments to be made, and the manner of conducting the same; and shall appoint some one of their number to superintend such experiments. Each officer having in charge any experiment shall keep a full record of his proceedings in conducting the same.

RTLE 10. Students, who have attained a suitable proficiency in their studies, may be appointed to assist in conducting experiments, and they shall, for that purpose, be under the direction of the officer having charge of the same.

RULE 11. The Superintendent of the Farm shall present to the Faculty, at their first meeting in February, a report on the stock belonging to the College, giving a detailed account of its condition, mode of management, increase and results of the system of breeding, together with such suggestions as he may think fit to make. This report shall embrace—

1. The number and kind of horses, their management and condition;

2. The number and condition of each of the different breeds of neat cattle; the number of grade animals, and the breeds from which they have been derived; and proposed disposition of the same;

3. The number and condition of each distinct breed of sheep, and the grades of the same, with a statement of the amount and quality of wool produced, their management, increase, &c.;

4. Swine;

5. Poultry;

RULE 12. Each breed of domestic animals shall be so kept as to avoid any danger of crossing or mixing with any other breed. Cross breeding shall not be permitted, except to accomplish a definite object, or for the purpose of experiment, and then only in accordance with a plan, setting forth the object to be accomplished and adopted by the Faculty; who shall prescribe such regulations as may be necessary for putting the same into practical operation.

RULE 13. An accurate record of the stock belonging to the College shall be kept in a book provided for that purpose. The details of the breeding and management of each breed shall be carefully and distinctly stated, together with the purpose for which each animal is kept, and the disposition made of the same.

RULE 14. For the purpose of imparting to the student an accurate knowledge of Agriculture as an art, the Instructors in the several departments of the College, in their class-exercises, shall illustrate the sciences taught, as far as possible, by a thorough discussion of the principles involved in the details of the practical operations on the farm and in the garden.

RULE 15. The Superintendents of the Farm and Gardens shall make an annual report on the implements used in their respective departments, giving the results of their experience in the use of each implement and its adaptedness to the purpose for which it was designed, and its comparative value. Any new implement that has been tried during the year shall be particularly described, and an accurate estimate of its merits given.

RULE 16. A Committee on Buildings, shall be appointed each year, who shall report to the Faculty the conditon of the buildings, and recommend such additions and improvements as may seem desirable. The Faculty shall carefully examine the report when presented, and shall make such recommendations to the Board of Agriculture as they may deem for the interest of the College.

RULE. 17. The State Board of Agriculture shall determine what proportion of the whole number of students on the farm and in the garden shall be assigned to each. The list of students shall be examined each week, to see that the proper proportion is employed in each department.

RULE 18. Students shall labor both on the farm and in the garden; and the alternations from the farm to the garden, and from the garden to the farm shall be as frequent as the proportion of farm and garden labor, as determined by the State Board of Agriculture, will permit: provided that such changes shall not occur oftener than once a week.

[April 6th, 1863, Rule 18 was amended by an addition that one class shall work an entire year on the garden and another on the farm for the same period.]

RULE 19. Students shall be employed with a view to their attaining the greatest proficiency in the art of farming, without reference to the greatest pecuniary gain to the College.

RULE 20. Work at the College shall be classified as follows: 1. Care of stock; 2. Care of tools and repairing the same; 3. Care of grounds and shrubbery; 4. Preparation of grounds for crops, plowing, &c.; 5. Sowing or planting different kinds of seeds; 6. Weeding and hoeing; 7. Harvesting and securing crops; 8. Preparation of manures; 9. Gathering and preserving seeds; 10. Secretary duties, care of books, &c.

RULE 21. The Faculty shall make such arrangements that each student shall perform a proper proportion of labor of the several kinds, as classified in Rule 20.

RULE 22. The Superintendents of the Farm and Gardens shall, once a month, deliver to the students lectures on topics connected with practical arrangement and management of farms and gardens.

RULE 23. The Professor of Agricultural Chemistry shall cause a daily meteorological journal to be kept, according to the system adopted by the Smithsonian Institute.

RULE 24. Any officer having in charge the development of any of these plans, who shall deem any change or modification of them advisable, shall submit to the Faculty a written statement, setting forth in full the reasons for the desired change. Changes or modifications adopted by the Faculty shall be recorded by the Secretary.

Under rule 17th, it was determined that two-thirds of the students not employed on special duties, should report to the Superintendent of the Farm for work, and the other third to the Superintendent of the Gardens.

Under rule 18th, the work of the Sophomore Class has been performed entirely under supervision of the Superintendent of the Gardens, and that of the Juniors under the Superintendent

of the Farm. This was done in order to enable systematic instruction in the manual operations of farm and gardens to be given during some portion of a student's course.

The plan contemplates the bestowing of considerable labor upon experiments—an expenditure that rarely brings pecuniary profit, and when it does, rarely without a very large previous expenditure of means and time. The list is a large one of discoverers and inventors, who have devoted life and all its means to accomplish some end, which has been secured only as the discoverer was ready to die. Agricultural experiments are costly, even the safer kinds require a degree of care that absorbs the profit which otherwise might accrue.

But, if Agriculture is ever to be an art founded on science, if a real knowledge of the laws and workings of nature is to be the basis of the farmer's practice in the culture of plants, in the selection, feeding, and breeding of animals, and the numberless other duties of his craft, then experiment must determine those laws and workings. The universal complaint of those philosophers who would generalize from particular cases and discover laws is, that in spite of the multitude of observers, and the cases recorded in the agricultural and other papers of the day, there is a great lack of accurately recorded observations. It is indeed *the* great lack, even upon the most commonly performed operations of the farm. As Agricultural Colleges become established, and able from their endowment to be at the expense, will it not be their work to provide the means of evidence from which these truths may be discovered? And may it not be hoped that the several State Agricultural Colleges will unite in well considered and conjoined efforts to this end? Gradually the world will furnish interpreters of the facts, and a true body of those sciences on which the practice of Agriculture is based will be the result.

But, aside from the hopes of furthering Science, experimenting must be carried on as a means of education of the student. He must be inducted into the methods of scientific proof and scientific discovery, or the grander and more inspir-

ing views of his profession will be wanting, and his power of doing good by the education bestowed upon him will be in great measure lost.

This system of labor, and of experimenting, was entered upon under many embarrassments. A complete compliance with the rules has been kept in view, and more nearly approximated to every year. At the close of last year (1864) the Faculty reported to the Board of Agriculture their great satisfaction in the workings of the system. It has served in a good degree to withstand the tendency of the College to turn from its proper work to that of giving a general education from books merely. It has tended to excite and maintain in students a relish for their out-of-door work. It has directed the native curiosity of the student towards those subjects which the College professes most particularly to teach.

United to this system of labor, and the Field Lectures with which it is attended, the College has the following in-door course of instruction:

COURSE OF INSTRUCTION.

PREPARATORY CLASS.

First Half Year — Arithmetic, Robinson's Higher; Descriptive Geography, Mitchell's School; English Grammer, Green.

Second Half Year—Algebra, Robinson's Elementary; Natural Philosophy, Olmsted's School; Composition, Quackenbos.

COLLEGE COURSE.

FRESHMAN CLASS.

First Half Year — Algebra, Robinson; History, Weber; Geometry, Robinson; Book-keeping, Bryant & Stratton.

Second Half Year—Trigonometry, Robinson; Surveying, Davies; Practical Agriculture; Principles of Stock-breeding, Goodale; Geology, Dana.

SOPHOMORE CLASS.

First Half Year—English Literature, Chambers and Spaulding; Structural Botany, Gray; Vegetable Physiology; Elementary Chemistry, Youmans.

Second Half Year — Entomology, Harris; Landscape Gardening—Downing and Kemp; Analytical Chemistry, Fresenius; Systematic Botany, Gray; Horticulture,

JUNIOR CLASS.

First Half Year—Physics, Snell's Olmsted; Agricultural Chemistry, Johnstone; Inductive Logic—Herschel.

Second Half Year—Physics, Silliman; Rhetoric, Whately and Day's Praxis; Animal Physiology.

SENIOR CLASS.

First Half Year—Zoology, Carpenter; Practical Agriculture; Mental Philosophy; Astronomy, Snell's Olmsted.

Second Half Year—Civil Engineering, Mahan; Moral Philosophy; Political Economy, Carey.

Declamations every six weeks during the course. Compositions every two weeks.

The instruction given in the more important departments is more fully drawn out, as follows:

DEPARTMENTS OF INSTRUCTION.

ELEMENTARY CHEMISTRY.

The primary forces—Heat, Light, Electricity, Magnetism, &c.; Chemical affinity and the laws of chemical combination; Elementary Substances, their history, properties, combinations and uses; Application of Chemistry to the arts and manufactures; Organic Chemistry.

ANALYTICAL CHEMISTRY.

General Analysis; Analysis of Soils; Analysis of Minerals, Use of the Blow-Pipe; Analysis of Manures; Analysis of Plants; Alkalimetry and Acidimetry.

AGRICULTURAL CHEMISTRY.

Formation and composition of soils; The relations of air and moisture to vegetable growth; Connection of heat, light and electricity, with growth of plants; Nature and source of food of plants; Chemical changes attending vegetable growth; Chemistry of the various processes of the farm, as plowing, fallowing, draining, &c.; Preparation, preserving and composting of manures; Artificial manures; Methods of improving soils by chemical means;—1st. By mineral manures, 2d. By vegetable manures, 3d. By animal manures, 4th. By indirect methods; Rotation of crops; Chemical composition of the various crops; The Chemistry of the dairy.

The instruction in Chemistry is imparted both by lectures and text books.

PRACTICAL AGRICULTURE.

The following subjects are embraced in the course of instruction in this department:

First Year.—Laying out of farms; Farm fences; Arrangement and planning of farm buildings; General principles of tillage; Principles of

drainage; Laying out and construction of drains; Implements for preparing the soil for crops; Mechanical preparation of the soil; Methods of seeding; Implements for seeding—their construction and management; Harvesting of crops; Implements and machines used in securing crops; Principles of Stock-breeding; Breeds of domestic animals—their characteristics and adaptation to particular purposes.

Fourth Year — General principles of farm economy; Manures—their management and mode of application; Succession of crops; Preparation of the soil for particular crops; Cultivation of grain crops; Cultivation of root crops; Cultivation of special crops; Management of grass lands; Stock husbandry; Care of animals and principles of feeding; Fattening of animals; Management of sheep.

In addition to the Course as presented above, instruction is given in the field in the various manual operations of the farm. By a system of rotation in the assignments of labor, each student is made practically familiar with the different kinds of work.

BOTANY.

A thorough course is first given in Structural Botany and Vegetable Physiology. Systematic Botany is then taken up, the natural orders being carefully studied in their following relations:

Their Botanical characteristics; Their size and geographical distribution; Their relative importance; The Genera and Species having economic or agricultural value; those having commercial or medical value; those having ornamental value; those which are obnoxious or detrimental, as weeds or poisonous plants.

The orders are illustrated by diagrams, and numerous living and dried specimens. The living specimens are dissected and examined by the student, and their genera and species determined. Several microscopes are used for this purpose. The indigenous plants, together with those cultivated in the gardens and grounds, afford ample material for the study of this department of Botany.

In the study of Vegetable Physiology, structure is fully illustrated by means of a complete set of diagrams. Two excellent microscopes are used in the study of minute structure.

HORTICULTURE.

In the course in Vegetable Physiology, the relations of that Science to Horticulture are pointed out. The Sophomore class being employed during the year in the gardens, orchards, and College grounds, has abundant opportunities for the application of the instruction received in the class-room. It is intended that each student shall have practical experience in every cultural operation.

In addition to these methods of instruction, a course of public lectures is given on the history, theory and practice of Horticulture.

ANIMAL PHYSIOLOGY.

In this department, particular attention is given to the Anatomy and Physiology of domestic animals.

The course is fully illustrated by anatomical preparations, diagrams, and models representing the comparative structure of the organs of locomotion, digestion, circulation, respiration and reproduction of each branch of the animal kingdom.

The application of the principles of Physiology to the management of domestic animals is fully discussed.

Dissections of animals are made, to render the student familiar with the appearance, situation and relations of the organs of the animal system in a state of health, and the changes produced by the action of diseases.

Opportunities will be given for the study of the minute structure of the various tissues by means of the microscope.

ZOÖLOGY.

Principles of the classification of animals, as founded on their structure and embryonic development.

Descriptive Zoölogy, comprising the systematic arrangement of animals in accordance with their natural affinities, in classes, orders, families, &c., habits and geographical distribution of animals.

ENTOMOLOGY.

The course in Entomology is illustrated by a valuable collection of native and exotic insects.

Particular attention is given to the study of species injurious to vegetation; and the best methods of checking their ravages are thoroughly discussed. Students, by collecting and preserving specimens of our native species, become familiar with their habits in their several stages of development.

MATHEMATICS AND CIVIL ENGINEERING.

The Preparatory Class spend some time in a review of Arithmetic. The following branches of Mathematics and their application follow:

Algebra, Geometry, Trigonometry, Analytical Geometry, Surveying, Leveling, Plotting, Mechanics, Strength of Materials, Arches, Farming, Bridge and Road Building, Industrial Drawing.

Students have the use of Chain, Compass, Level and other instruments for practice; and receive instruction in the field as well as in the lecture room, each student being required to take charge of the field surveys, and to become practically acquainted with the use of the Level.

GEOLOGY.

A course of daily recitations in Geology during the first half of the freshman year, is fully illustrated by maps, diagrams, specimens &c., and accompanied by familiar lectures on the relations of the Science to Agriculture.

ENGLISH LITERATURE.

Instruction in this department is given by means of Text Books and Lectures. Rhetoric—Style. History of English Literature. Rhetoric—Arguments, Conviction, Persuasion, Fallacies in Reasoning.

Select portions of English Classics receive critical examination in a course of reading prescribed for each class. This course may vary somewhat from year to year. With a late class it was as follows:

Freshman Class—Selections in prose and verse.

Sophomore Class—Portions of Chaucer committed to memory; Milton's Lycidas in a course of six lectures; two books of Paradise Lost.

Junior Class—Shakspeare's Julius Cæsar; Shakspeare's Merchant of Venice.

Senior Class—Webster's reply to Hayne.

Declamations every six weeks. Compositions every two weeks, by each student. The classes have regular and systematic instruction in the art of the selection, arrangement and expression of the matter related to the assigned or chosen topics.

PREPARATORY.

A preparatory course is found to be necesssary. It is especially designed as a review of the ordinary branches of a common school education, in order to qualify the student the better for the studies of the College course. It aims also to prepare the student for teaching during the winter months.

By means of this employment many of the students defray a large portion of their expenses; and both their own needs and the interests of the common schools of the State are subserved by the review given to those studies.

MEANS OF ILLUSTRATION.

1. A farm of 676 acres, of which about 300 are under cultivation;
2. Botanical gardens of trees, shrubs and herbaceous plants;
3. Vegetable garden, small fruit garden, apple orchard, pear orchard, general lawn and grounds;
4. Galloway, Ayrshire, Devon and Short Horn cattle; Essex and Suffolk Swine; Southdown, Cotswold, Spanish Merino, and Black-faced Heath sheep;
5. A Chemical Laboratory and Apparatus;
6. Philosophical and Mathematical Apparatus;
7. A Museum of animals and minerals;
8. The Cooley Herbarium—a very valuable collection of plants;
9. Library and Reading Room;
10. Buildings, workshops, tools, &c.

STUDENTS.

Students formerly occupied rooms in the College Hall, as well as in the Boarding Hall. But the natural growth of the College, its departments and museums has made it necessary to appropriate most of the rooms of College Hall to the public uses of

the Institution. The eighty-eight students in attendance last year, had not rooms enough for their comfort. Were there accommodations for one hundred and fifty, two in a room, that number of students would probably be in attendance.

FUND.

The State of Michigan accepted a grant of 240,000 acres of land from the General Government, and gave it to the Agricultural College. No report of the Aricultural Land Grant Board has appeared of later date than Dec. 1864, when 149,447 acres had been selected. The Board of Agriculture, which has charge of the Agricultural College, has not the management of the lands. The Board has control of the interest only of the fund accruing from the sales of them. No interest has yet been realized.

The Legislature appropriated $15,000 00 for the support of the Institution during each of years 1865 and 1866. It was all the Board of Agriculture asked for. A much larger sum could have been properly expended in bringing the farm, gardens, stock, apparatus and Library into a condition more befitting a school representing the agriculture and industry of the State.

LOCATION.

A petition was presented to the Legislature by the Executive Committee of the State Agricultural Society for the removal of the College to a more accessible locality. The petition did not excite a word of debate, and was referred to a committee which never reported on it. The completion of the Railroad from Jackson to Lansing makes Lansing as accessible to the different sections of the State as any other town. A glance at a map of Michigan is sufficient to make this appear.

REMARKS.

So diverse are opinions as to what the State Agricultural College ought to be, that any trustworthy testimony as to the value of its plans and success of its workings is valuable. The course of study and rules for the connection of the labor and

instruction were submitted to the examination of many persons interested in such objects soon after their adoption by the State Board of Agriculture. They have elicited very general commendation from those gentlemen. The endorsement of the plan by the head of the Department of Agriculture at Washington was very emphatic. Committees of the Legislature, and farmers who visited the institution, have also almost uniformly expressed themselves as gratified with the changes that have been made. The College received a visit, the present season from the Hon. Henry F. French, President of the State Agricultural College of Massachusetts.

The Massachusetts Ploughman of July 1, 1865, contains a letter from Judge French, from which the following sentences are copied:

"Upon the really important question, how best to organize and build up effectually the Massachusetts Agricultural College, which is my constant study, it is not the part of prudence to speak yet much in detail. * * Among the special objects of my tour is the Michigan Agricultural College, of which I will venture to say something, as it is one of the very few of such institutions at present flourishing in this country. * * I have carefully watched the progress of this institution, and read all its published statements from the beginning, and I have no hesitation in saying that it has made far more progress than its modest officers have claimed, and that the State ought thus far to be well satisfied with its experiment. * * The relations of teacher and pupils are very familiar and pleasant at the College. * * The great problem of uniting labor and study is being very successfully solved at this institution. Manual labor three hours a day is required of each student. Two-thirds of the students are assigned to the care of Dr. Miles, for the farm, and one-third to Professor Prentiss for the garden. There is a workshop where the students labor in making and repairing farm implements, and the object of their labor being education and not profit, they are assigned in turn to the garden, field and workshop. The

work is not found to be a substitute for play, but the usual amount of base-ball seems requisite, and the students have themselves undertaken to build a gymnasium. In short, there is about as much human nature in the boys at the Michigan College as anywhere else, and they who harmonize their efforts with the dispensations of Providence, instead of endeavoring to thwart them, are most likely to succeed. * * * * * What I have witnessed of their success gives courage to hope that Massachusetts may not be disappointed in her enterprise of the same character."

The endorsement of such a man, familiar with the system pursued at the College, and conversant with the discussions which have lately arisen in different States upon the subject, is certainly worth recording. It tends to encourage the efforts of the Board of Agriculture and the Faculty of the College, in their experiments and efforts, and may serve to increase the confidence of those who are unable to give personal examination to the subject.

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State Agricultural College,
December, 1, 1868.

Hon. O. Hosford, *Supt. of Public Instruction:*

Dear Sir—The College has just closed a prosperous year.

The Faculty remained unchanged until near the close of the year, when A. N. Prentiss, the Professor of Botany and Horticulture, a graduate of this Institution, whose management of the Horticultural department and of his professorship was eminently successful, resigned, to take a similar place in the Cornell University. Will W. Tracy, a graduate, has been appointed instructor of Horticulture, and the management of the Gardens committed to his charge. Albert J. Cook, a graduate of 1862, has been appointed Professor of Zoölogy and Entomology. He availed himself of last winter's vacation to put himself under the instruction of Agassiz, and Oliver Wendell Holmes; and this winter enjoys the rare advantages of instruction in Entomology, of the German Naturalist, Hagen, and in Zoölogy, of Agassiz.

The Faculty now consists of a President, a Professor of Practical Agriculture and Animal Physiology, a Professor of Agricultural Chemistry, a Professor of Botany and Horticulture, (to be appointed,) the Secretary, a Professor of English Literature, a Professor of Zoölogy and Entomology, and an Instructor in Horticulture.

The College authorities hope for the time when other professorships, such as Geology, Meteorology, Veterinary, Industrial Drawing, and of the sciences, shall be filled by men who can devote their entire time to our limited field of study, and aid in the advancement of it.

STUDENTS.

The number of students has been 82, with an average attendance of 80. This average does not take into account short absences of actual students granted by the Faculty.

This small number of students is thrown out as a reproach to the College, both at home and abroad. Perhaps it would be matter of still greater reproach to the College or the State, whichever is to blame for the fact, that the Institution has but nineteen rooms for the accommodation of students. Ten of these rooms are about 19 by 13 feet in size, and nine are about 14 by 14 feet in size. Not one of these rooms has a bed-room off it, and no one has more than one closet, and no closet is so much as two feet deep. Three additional rooms in the College Hall are given up to students, while in order to do this, the museum is left without a work-room, and objects intended for the museums of Horticultural and other departments are left unclaimed by the departments, because students fill the rooms that are needed for them.

As early as Dec. 7, 1858, (ten years ago,) the President of the College writes, "In the present boarding hall four students are placed in each room together; an arrangement at war with every scientific truth, and with all the natural laws we inculcate relative to the preservation of health." No new hall has been erected, and the practice still continues of putting three, and often four, into one room.

Other States are doing better, and through liberal State appropriations, are enabling the Agricultural Colleges to take all qualified students that apply, leaving Michigan, which in number of students might rank with the best of them, far in the background, for want of dormitorial accommodations. For several years the College has had to reject many applicants for this single lack of room.

The students of 1868 came from 26 different counties of the State, six were from without the State, all but two having gained admission into the College before the necessity of dis-

couraging such applications was so manifest. Applications for admission from other States are numerous.

There have been in the Senior Class, 10; Juniors, 13; Sophomores, 23; and Freshmen, 34. There has been no Preparatory Class the past year, and no students in the Select Course.

The average ages of the students was, as given in on entering, as follows: Seniors, 21 6-10; Juniors, 20 4-10; Sophomores, 20 4-10; and Freshmen, 18 8-10. It will be seen that the students are of sufficient age to have considerable maturity of mind. They have proved students of the most desirable character. The Michigan Teacher for December, 1868, correctly describes them: "There has been no unruly conduct, no rowdyish noises or pranks, or occasion for discipline for any such conduct during the entire year. The students have had free and unwatched access at all times to the ripening grapes, musk-melons, water-melons and other fruits, and no instance of meddling with them has been known."

Of the eighty-two in attendance, sixty were the sons of farmers, and forty-seven were teaching, or at work during the winter of 1867–8, to gain means to half pay their expenses at the College; sixteen spent the same winter in school. The ten Seniors were graduated at the close of the year.

GRADUATES.

The Agricultural College was empowered to grant degrees in 1861. At that time the course of study was enlarged from two years to four, depriving the College of one class—the Sophomore.

The remaining seven years have graduated thirty-four students, ten of whom received their diplomas at the last Commencement. The occupations that will be chosen by these last graduates are not yet known.

Of the twenty-four graduates of years preceding the present, eight are farmers, and another owns a farm which he is clearing from his earnings as a teacher, and which he expects to work himself. Four graduates are instructors in Agricultural Col-

leges; one as professor of Agriculture in Madison University, one as professor of Botany in Cornell University, one as professor of Zoölogy and Entomology, and the fourth as instructor in Horticulture in this College. A fifth was for four years a professor in this institution, but is now engaged in other pursuits. One graduate is a machinist, one a surveyor, two died in the United States service, and the remaining five are engaged in teaching, or other callings not considered industrial. Three of the graduates named as professors or instructors have charge of farms, gardens, teams, implements and labor, and could properly be classed as farmers.

It is, perhaps, too soon to draw any general conclusion as to whether an Agricultural College is more likely to return its graduates to industrial callings, than other institutions are. But the above statement is made in reply to frequent inquiries, and as at least a sufficient answer to those who affirm that not three in a hundred of those who graduate from such Colleges will ever work on a farm, or betake themselves to industrial callings. It may be better to watch and record results, than to theorize about the matter. It has been no doubt honestly doubted, whether the College, with all its advantages, will fit a man for his duties as a practical farmer any better than ordinary labor on an ordinary farm. But the case is not an anomaly. The writer of this report has several times been applied to for advice, by young men desirous of preparing themselves for the practice of law. They say they are advised by many in whose judgment they have great confidence, to go at once into a lawyer's office, and waste no time and money in a law school. This, however, is not the place to discuss general principles of professional education.

Many students have taken only a partial course in the College, embracing Botany, Horticulture, Chemistry and some other studies. The occupations of twenty-six persons who had taken such a course in the sciences have been examined as they came in order in the catalogue.

Two such students died in the army; the occupations of three

are unknown; four are in professions or the army; one is a surveyor; two are nurserymen, and fourteen are farmers.

It is not improbable that other graduates may become farmers, who now, possessing no farm nor means of purchasing one, prefer teaching at $45 a month, to farm labor at $22.

STANDARD OF ADMISSION.

One of the reasons why an education received in a Scientific Course of a College has been considered of inferior value to one gained in the Classical Course, has arisen from the difference in the amount (not kind) of preparation required for entering. The applicant for admission to the Classical Department has been compelled to go through a three, or at least a two years course of study and mental discipline, over and above all that was required of the applicant to other courses of study. On graduating, the student who leaves the walls of the Classics has had two or three years more of study than his brother graduate from the Scientific Course. Now, it is not possible to make four years of study do the work of seven; and the difference in scholarship and discipline is felt on graduating, and even after. It is not fair to decry the educating qualities of scientific study because four years of it will not yield as good fruit as seven years of literature and the arts.

The requirements for admission to this College are thus fixed by law: "No student shall be admitted to the Institution who is not fifteen years of age, and who does not pass a satisfactory examination in arithmetic, geography, grammar, reading, spelling and penmanship." The law also says, the College "shall be a high seminary of learning, in which the graduate of the common school can commence, pursue and finish a course of study."

It would probably be very unwise to sever the College from this connection with the common schools. Indeed, what is most needed for a course of study at the College, after a knowledge of the common branches enumerated, is a certain maturity of mind. For lack of text-books, the courses of instruction

in agricultural chemistry, agriculture, a half year of botany, and other branches, are given in lectures, requiring habits of attention in the students.

The terms of admission into the College do not vary much from those required in the other agricultural colleges in the land. Iowa and Cornell University (Agricultural Department,) require the same; Maine, Vermont and Massachusetts require some knowledge of Algebra; Illinois the same as Michigan, with the addition of History of the United States. The requirements in Maine do not differ much from those required by, perhaps, most of the scientific departments of colleges.

As to the value of most of the studies required for admission, nothing need be said. A good preparation, however, in Geography is of great importance in a course of study like that of the Agricultural College. Meteorology, Botany, Zoölogy and Geology, all become more interesting and valuable to students who have not neglected this branch of study.

It is, without doubt, greatly desirable that the standard of admission into schools of agriculture and science should be elevated. It must not be done, however, in a way to sever them from vital connection with the common school system of the State. Previous to the law reorganizing the College, (1861,) a partial attempt was made to have the Agricultural College a professional school only, into which it was hoped the graduates of other colleges, and other already educated men, would come for professional training. Such an expectation would not have been realized. Even the scientific schools of Yale and Cambridge have but a sprinkling of graduates in them. Of the 418 students in Medicine in the University of Michigan, (1867–8,) but 19 are marked as having received any academic degree, and of the 387 students in the Department of Law, not one is marked as a graduate from any college. Still less is it to be expected that students of agriculture and horticulture will take a preliminary course before entering an agricultural college. A special training has long been considered essential to the practice of law and medicine, while to farmers themselves it is a new and doubtful

idea, that colleges and book learning can really fit them for their work. The Agricultural College requirements for admission are as high as those of the Law School and the Medical School, and the professional studies of longer continuance.

Agricultural colleges labor under other peculiar difficulties. There is no brotherhood of them; there is no general plan of organization, and common schools do not take them into account in their teachings. These schools have almost no graduates abroad, turning the attention of other aspiring youth towards their halls; they have not their share of teachers in the schools holding in mind the peculiar qualifications required in them.

COURSE OF INSTRUCTION.

The observations just made point to the necessity of just such a course of study as the organic law specifies: one at once professional and general, one not supposing the student to have taken a collegiate course in some other institution.

The experience of this institution has convinced its officers that a defined course of study should be insisted upon. Students should not be allowed at will to leave a study half completed and turn to another which may seem at the time more attractive.

It is, however, the earnest desire of the officers to present to the students various courses, which, while agreeing in the main, shall diverge sufficiently to afford to each student more thorough instruction in the peculiar calling which he has chosen. Thus chemistry, or the management of stock, or landscape gardening, or entomology, or horticulture, arboriculture, or veterinary, or any one of many other of the wide range of studies pursued, might branch off from the general course into peculiar prominence. The modern languages, also, should receive more attention. The coming fund may enable the College to realize this plan.

COURSE OF INSTRUCTION.—FRESHMAN CLASS.

FIRST HALF YEAR.

Algebra—Robinson's New University.
History—Weber's Outlines.
Geometry—Robinson's New University.
Book-Keeping—Bryant & Stratton.

SECOND HALF YEAR.

Trigonometry—Robinson.
Surveying—Davies.
Practical Agriculture, Lectures, Goodale's Stock-Breeding, Waring's Drainage, &c.
Geology—Dana.

SOPHOMORE CLASS.

FIRST HALF YEAR.

English Literature—Chambers, Spalding
Botany—Gray.
Elementary Chemistry—Youmans, and Lectures

SECOND HALF YEAR.

Entomology—Harris.
Analytical Chemistry—Fresenius.
Botany—Gray, Darlington, Lindley, and *chiefly* Lectures.
Horticulture—Thomas, Lectures.

JUNIOR CLASS.

FIRST HALF YEAR.

Physics—Snell's Olmstead.
Agricultural Chemistry—Johnstone, mostly Lectures.
Inductive Logic—Herschel.

SECOND HALF YEAR

Physics—Miller's Chemistry, first volume.
Rhetoric—Whately, Day's Praxis.
Animal Physiology—Dalton.

SENIOR CLASS

FIRST HALF YEAR.

Zoology—Carpenter.
Practical Agriculture—Lectures
Mental Philosophy—Wayland.
Astronomy—Snell's Olmsted.
Landscape Gardening—Downing, Kemp.
French.

SECOND HALF YEAR.

Civil Engineering—Mahan.
Moral Philosophy—Haven.
Political Economy—Carey, Walker.
French—Fasquelle, De Vivas' Classic Reader.
Declamations and Compositions throughout the entire course.

DEPARTMENTS OF INSTRUCTION.

Elementary Chemistry.—The primary forces—Heat, Light, Electricity, Magnetism, etc.; Chemical affinity and laws of chemical combination; Elementary Substances—their history, properties, combinations and uses; Application of Chemistry to the arts and manufactures; Organic Chemistry. In the study of Elementary Chemistry, the facts and principles of the science are illustrated by experiments.

Analytical Chemistry.—General Analysis; Analysis of Soils; Analysis of Minerals; Use of the Blow-Pipe; Analysis of Manures; Analysis of the ashes of Plants; Alkalimetry and Acidimetry. In prosecuting Chemical Analysis, the student spends three hours a day in the Laboratory, under the direction and supervision of the Professor in Chemistry, applying with his own hands the tests required to determine the composition and properties of bodies, thus securing a practical knowledge of the methods employed in these investigations.

Agricultural Chemistry.—Formation and composition of soils; the relations of air and moisture to vegetable growth; Connection of heat, light and electricity with growth of plants; Nature and source of food of plants; Chemical changes attending vegetable growth; Chemistry of the various processes of the farm, as plowing, fallowing, draining, etc.; Preparation, preserving and composting of Manure; Artificial Manure; Methods of improving soils by chemical means; by mineral manures; by vegetable manures; by animal manures, by indirect methods; Rotation of crops; Chemical composition of the various crops; the Chemistry of the dairy. The instruction in Chemistry is imparted both by lectures and text-books.

Practical Agriculture.—*First Year.*—Laying out of farms; Arrangement and planning of farm buildings; Farm Implements; General principles of tillage; Principles of drainage; Laying out and construction of drains; Methods of seeding; Harvesting of crops; Principles of Stock-breeding; Breeds of domestic animals—their characteristics and adaptation to particular purposes.

Fourth Year.—General principles of farm Economy; Manures—their management and mode of application; Succession of crops; Preparation of the soil for particular crops; Cultivation of crops; Management of grass lands; Stock husbandry; Care of animals and principles of feeding; Fattening of animals; Management of sheep. In addition to the above course, instruction is given in the field in the various manual operations of the farm.

Botany.—A course is first given in Physiological Botany; Systematic Botany is then taken up, the Natural Orders being studied as to their Botanical characteristics; their size and geographical distribution; their relative importance; the Genera and Species having agricultural value; those having commercial or medical value; those having ornamental value; and those which are obnoxious or detrimental, as weeds or poisonous plants. The orders are illustrated by diagrams, and numerous living and dried specimens. The living specimens are dissected and examined by the student, and their genera and species determined. The indigenous plants, together with those cultivated in the gardens and grounds, afford material for the study of this department of Botany. In the study of Vegetable Physiology, structure is illustrated by means of diagrams. Several excellent microscopes are used in the study of minute structure.

Horticulture.—In the course in Vegetable Physiology, the relations of that Science to Horticulture are pointed out. The Sophomore Class being employed during the year in the gardens and College grounds, is afforded abundant opportunities

for the application of the instruction received in the class-room. It is intended that each student shall have practical experience in every cultural operation. In addition to these methods of instruction, a course of lectures is given on the history, theory and practice of Horticulture.

Animal Physiology.—In this department, particular attention is given to the Anatomy and Physiology of domestic animals. The course is illustrated by anatomical preparations and diagrams, representing the comparative structure of the organs of locomotion, digestion, circulation, respiration and reproduction of each branch of the animal kingdom. Dissections of animals are made to render the student familiar with the appearance, situation and relation of the organs of the animal system in a state of health, and the changes produced by disease. Opportunities are given for the study of the minute structure of the various tissues by means of the microscope.

Zoölogy.—Principles of the classification of animals, as founded on their structure and embryonic development. Descriptive Zoölogy, comprising the systematic arrangement of animals in accordance with their natural affinities, in classes, orders, families, etc.; habits and geographical distribution of animals.

Entomology.—The course in Entomology is illustrated by a valuable collection of native and exotic insects. Particular attention is given to the study of species injurious to vegetation; and the best methods of checking their ravages is discussed. Students by collecting and preserving specimens of our native species, become familiar with their habits in their several stages of development.

Mathematics and Civil Engineering.—Algebra, Geometry, Plane Trigonometry, Spherical Trigonometry, Analytical Geometry, Surveying, Leveling, Plotting, Mechanics, Strength of Materials, Arches, Framing, Bridge and Road Building. Students have the use of Chain, Compass, and other instruments for practice, and receive instruction in the field as well as in the

Lecture Room, each student being required to take charge of field surveys, and to become practically acquainted with the use of the Level.

Geology.—A course of daily recitations in Geology during the second half of the Freshman year is illustrated by maps, diagrams and specimens.

English Literature.—Instruction in this department is given by means of text books and Lectures. Rhetoric—Style. History of English Literature. Rhetoric—Arguments, Conviction, Persuasion, Fallacies in Reasoning. Select portions of English Classics receive critical examination in a course of reading prescribed for each class. The classes have regular and systematic instruction in the art of selection, arrangement and expression of the matter related to the assigned or chosen topics for composition.

Labor.—Each student, not exempt for physical disability, is required to labor three hours a day on the farm or in the gardens. The number of hours may be increased to four or diminished to two and a half. Some compensation (see means of defraying expenses) is allowed; but the labor is regarded as an essential part of the educational system of the College, and is performed with special reference to illustrating and applying the instruction of the Lecture Room. Students are not employed in those kinds of work only in which they may be most proficient, but, as the work is classified, each is made acquainted with all the operations of farming and gardening. The Sophomore Class work the entire year under the direction of the Professor of Horticulture. The Juniors spend the year under the direction of the Professor of Practical Agriculture. The other classes alternate between the farm and gardens.

LABOR SYSTEM.

Who established the Labor System?

The Legislature of the State. The organic law of the College says: "Three hours of each day shall be devoted by every student of the College to labor upon the farm, and no person

shall be exempt except for physical disability. By a vote of the Board of Agriculture, at such season and in such exigencies as demand it, the hours of labor may be increased to four hours, or diminished to two and a half.

What is the Labor System in the Michigan Agricultural College?

1. All students labor, except when exempt on account of physical disability. There is consequently no caste in the College, arising from difference in this respect.

2. The regular hours of labor are from half-past one to half-past four each afternoon, Saturdays excepted, on which day labor is furnished only on request. This arrangement leaves the entire forenoon for study and classes, and gives time for complete rest after labor, before the study of the evening. Some years ago, the students were divided into three divisions, the first division going to their work immediately after breakfast, a second division at the end of three hours, and the third in the afternoon. By this arrangement the teams were kept employed by the students, and the expense of hiring hands to some degree obviated. But the present plan gives a better part of the day to study, and admits of a much more careful oversight of the work of students by the officers of the College.

3. The officers of the College work with the students, or personally superintend the work. The Professors of Agriculture and Horticulture, the foremen of farm and garden, and the foreman of the greenhouse, are always out with the students during their work, while the Professor of Chemistry and other officers often are so.

4. The labor is intimately connected with the subjects of the lessons of the students. Lectures are not infrequently given in the field, or yards where the stock is kept. The principles learned from books find their illustrations in the field or workshop, and on the other hand, what students observe while at labor stimulates them to the study of principles.

In the first, third and fourth particulars the labor system is believed to differ in essential respects from the labor systems that have proved failures in other institutions.

5. The Juniors work their entire year under the direction of the Professor of Practical Agriculture; and the Sophomores work theirs under the Professor of Botany and Horticulture. This arrangement affords those Professors opportunities for a somewhat systematic instruction in the labor in their departments. The members of the other classes perform special duties assigned to them, or work upon the farm or in the gardens, under assignments made every fortnight. The Farm Department receives double the working force of students that the Horticultural Department has.

Do students shirk their work?

Almost never. Nearly all of them were accustomed to work before entering the College, and find the three hours' work no hardship. A large majority of them need the 7 or the 7½ cents an hour that the good workers receive for their labor, in order to help pay their College expenses. The great variety in the labors required, and their relation to their studies, serve to interest them, and they often manifest a strong interest in furthering the work to be done. The best scholars are almost always the best workers.

The students work cheerfully with the professors and foremen. They are treated more as companions than as laborers, and the feeling of authority exerted, or of compulsion, is scarcely ever thought of, if we can trust to appearances, and to the hearty good will existing between Faculty and students.

Does the labor of students "pay?"

Pay how? or what? This is a College; and everything pays that is not too costly a means of illustration, or of instruction, or of securing skill, in the matters it is designed to teach. A College buys large museums to aid the student in his study of geology, or zoölogy, or mineralogy, and the expenditure "pays" by furnishing means of study. So with the chemical laboratory, the library, &c. It is the same with botanic gardens, with varieties of stock, with fruits, nurseries, vegetable gardens, farm crops, implements, meadows, pastures and all the furniture of a College like this. They "pay" by being means of illustration

accompanying the lessons of the text-books and lectures. But since the chemist's knowledge is more accurate after he has had practice in the chemical laboratory, therefore here students work a half year in the laboratory in the course of their year, and a half in chemistry. The surveyor's knowledge is more to be relied upon if he has actually used the compass and level, surveyed lands, calculated contents, and made plats. Students receive such practice here. In the same way they have practice in grafting, budding, transplanting, the use of farm and garden implements, and in the manual operations of farm and garden. The College thus imparts the practical knowledge it was established to teach. If the labor teaches, gives familiarity with mechanical, botanical, horticultural principles, and bestows practical skill upon the student, in so far it does pay like any other expenditure for sustaining an educational institution.

The labor system is, of course, not without its expense to the institution. As the students work all at the same time, there is need of a far greater number of tools, and to some degree, of teams of horses and oxen, than would be required on a farm of equal size as usually managed. So the great variety of work, and wide range of instruction given, require a larger variety of tools, of crops and breeds of animals, than would be needed on a farm managed for profit. So also, three hours labor of a stout boy is not worth so much as a third of nine hours a day by the same boy, for it is limited to a set time, (afternoon,) and ends irrespective of the condition of the work he is busied with, unless there is actual danger to the piece of work in thus quitting it. Besides, labor has to be planned for a large force for three hours, succeeding and being succeeded by a very small one. To make the labor educational requires also the constant superintendence of skilled professors and overseers, who must be paid.

Do students do their work well?

The report of two years ago expresses a doubt as to whether the work of students was as well done as hired men would do it. The doubt would be wrong as regards the years 1867 and

1868. Considering the great variety of work required, and the frequency of change from one kind to another, it is not believed that hands could be hired to do the work so well as students have done it. Practiced hands can of course do ordinary farm work better than most students could learn to do it from a little practice at the College, but in fact, most of the students were accustomed to farm work previously to entering the College.

The labor system has been succeeding better every year.

EXPERIMENTS.

Experiments of various kinds are conducted at the College, and the results published in the annual reports of the Secretary of the State Board of Agriculture. These experiments have, within a few years, met the approval of qualified judges, both as to the value of the results aimed at, and the accuracy and fitness of the methods employed. Amongst other papers, the *Country Gentleman*, of Albany, and the *American Agriculturist*, of New York, have paid particular attention to them, and the lessons to be derived from them. Joseph Harris, author of "Walks and Talks," in the paper last named, personally examined some of the experiments while in progress and the methods pursued, and published in the paper his convictions of their value and the accuracy with which they are conducted. As this gentleman is a fine chemist, and had experience in experimenting under Messrs. Dawes and Gilbert, the distinguished English experimenters, his testimony is valuable.

Nearly all persons who have written about Agricultural Colleges agree as to the peculiar propriety of their conducting experiments. Professor Agassiz says: "We should have all the experiments of Prof. Ville repeated in these Colleges. But that is not all. We should have all the experiments made by Magendie and Boussingault upon the feeding of cattle, upon the nursing of animals; we should have all the experiments made upon breeding, upon crossing breeds, and upon the whole animal economy of the domestic animals." Liebig has expressed

a like opinion, the Agricultural press and Societies have reiterated the same.

Experimenting, however, is not the way to make a farm "pay," in a financial view. The substances applied and methods employed may perhaps retard the growth and diminish the value of a crop. Still in the view of science such a result is valuable. Under the most favorable circumstances the necessity of constant oversight, the constant weighings and measurings, the numberless computations, the interference with the most economical disposition of labor, &c., go far to eat up the marketable profits of the crop.

The experiments of 1867 filled seventeen printed pages of the report of the Board of Agriculture, mostly with tables of figures; those of the present year (1868,) are much more extensive. Careful experimenting requires peculiar means and facilities for conducting them, and of these the College yet has but a very limited supply.

MEANS OF ILLUSTRATION.

The Farm.—The Farm, Gardens and Lawns cover an area of 676 acres. The Red Cedar river runs through the farm from east to west, leaving about 180 acres upon the north side of it. On this side are the buildings, gardens, orchards, and a portion of the farm. The apple orchard occupies 16 acres; four farm fields 67 acres, pasture about 20 acres. The rest, nearly 80 acres is without division fences, and contains the lawns proper, College and Boarding Halls, Professors' dwelling-houses, pear orchard, small fruit and other gardens. Undulating ground, groves of trees, a ravine, widening into the alluvial meadows along the river, and near the western part high river banks with almost a horse-shoe curve of the river, afford already very pleasant grounds for the Institution, and have in themselves promise of much beauty.

The soil of the domain is exceedingly various. A sandy soil extends from the entrance to the grounds to beyond the College buildings, becoming near the farm workshop almost a

floating sand. A large number of the forest oaks now stand on this tract, and evergreen spruces grow rapidly on it. A sandy loam, with clay subsoil, lies all about the greenhouse. Much of this is underlaid with tile drain. To the west there is clay loam, and in places quite a stiff clay. East of the cattle barn is a fine bed of peat, and much of the river is bordered by alluvial flats. Most of the farm, however, is an excellent loam farm land, either still or originally covered with a fine growth of timber.

The original timber of the garden tract and lawn was oak. Most of the farm was, or is, covered with a various growth, consisting mostly of maple, beech, oak, elm, ash, basswood, whitewood, black walnut, and some hickory and poplar.

Cattle Barn.—The farm has a good cattle barn, with 29 stalls, and room for 95 tons of hay, built in 1862. It is erected on a solid stone basement used for stabling cattle, is 42 feet by 64, with 22 feet posts. It has in the basement a root cellar, with ventilating tube running into one of the large ventilators of the barn; a granary furnished with bins, in which the number of bushels in measure stored at any time can be at once read. By means of a horse-power, a straw cutter is run upon the upper floor, and a root pulper in the basement.

Cattle Shed.—In 1864, a cattle shed was built adjoining the barn. It is 90 feet by 24, contains four bull stables, and other accommodations for cattle, and room in the bay for 54 tons of hay.

Sheep Barn.—A fine barn for sheep was built in 1865, furnished with ten separate pens for sheep, ventilators, (used also as hay chutes,) pump, fleece-room, tool-room, hay-mow, yards, &c.

Other Buildings.—A brick building is used, the basement for stabling the horses of the farm department, and the Steward; the upper floor for hay; and the middle floor, which is inaccessible from either of the others, for a mechanical *work shop and tool room.* There is a building, temporary in structure, for *farm implements; sheds* for wagons; a temporary structure for

experiments; a piggery which ought at once to give place to another, but which cannot for lack of means; and a *farm house,* occupied by the foreman of the farm.

The buildings just enumerated belong to the Farm Department.

The Horticultural Department has a *Horse barn,* with which is connected a tool-house and a shed for wagons. This was built in 1867. *A Greenhouse* 90 feet long was also built in 1867. The basement of College Hall is used by the Horticultural Department, and divided into office, tool-room, fruit-house and workshop.

Cattle.—The College possesses Short Horn, Devon, Ayrshire, and Galloway cattle of choice pedigrees; Spanish Merino, Cotswold, Southdown and Black-faced Heath sheep, (Scotch Highland); and Suffolk, Essex, Chester White and Berkshire swine.

There is a chemical laboratory for the use of students, philosophical aparatus, surveying and leveling implements. The College has a collection of shells, birds, minerals, &c. The Cooley Herbarium, so named from its enthusiastic collector, Dennis Cooley, M. D., is a very large and choice collection of plants admirably preserved—especially rich in grasses and in our indigenous flora, and containing also a large collection of tropical, Californian and Australian species. A museum of botanical products is commenced.

The College has an Apple Orchard, Pear Orchard, Vegetable Garden, Fruit Garden, Nurseries, Flower Borders, &c. It has a Library and Reading Room.

Meteorological Records are kept by the professor of Chemistry, in accordance with the plans recommended by the Smithsonian Institution, and published annually in the reports of the State Board of Agriculture.

COMFORT OF STUDENTS.

Their place here can hardly be called comfortable, since three or four occupy the same room for study. Lack of rooms

compels to this. The only reason it is tolerable to students is because their average age is so high (above twenty), and because they earnestly desire to secure the benefits of the College course of study. When a student is *not* gaining the benefits for which he was sent here, or persists in making the condition of others uncomfortable by rowdyism, noise, or other infractions of the rules of general good conduct among citizens, his father is requested to withdraw him from the College. This was Dr. Arnold's practice, and one which we think admirable.

We have, at the Agricultural College, a modification of the old dormitory system. Care is taken to secure a Steward of the College whom all may respect. This Steward and his family live in the building occupied by students. They eat at a common table; the students apply to him for care in sickness, and submit to his authority regarding the rules of the house.

Students do not feel themselves put at a distance from the Professors.

If a Professor calls at a student's room it is construed into friendliness. Home, and reading, and ball-playing, and the news are talked over just as one citizen would do with another. The Faculty and students work together; three of the Faculty were members of the base-ball club; students are on a footing of friendly intercourse with all members of the Faculty. Every Saturday evening the President and his family devote to receiving visits and calls from them. They have sufficient opportunities for forming other acquaintances.

It would be desirable to be nearer town on account of church services on the Sabbath. The religious exercises of the College are daily prayers in the chapel, public worship on Sunday afternoon, and a voluntary Bible class, attended the last year by about thirty of the students.

FUNDS.

The Institution is supported by direct appropriation from the State. Its share of public lands in accordance with the Congressional grant, is 240,000 acres of land. No income has been

derived from this source as yet. The selection, sale and investment of the lands are not entrusted to the Board of Agriculture, but to a special Board created by law. The lands are in market.

OTHER COURSES OF STUDY.

The Congressional Grant was intended for the maintenance of Colleges "where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Here is provision for a University wherein all arts and sciences should be taught, provided only that industrial education receive in it first and sufficient attention. We have in this College had, during some years, lectures on field fortifications and military hygiene; we have guns and other military equipments, and have had, (last year, and several other years,) military drill. After all, however, it would seem to be wise to confine our attention chiefly, at present, to Agriculture and Horticulture in its many branches, with such additional studies as teach the student to think, to express his thoughts, and to know in general his civil rights and duties.

The College was founded by the State, went into operation in 1857, long before the Congressional grant; has not as yet received any income from the grant, but is supported by Legislative appropriation. It was established as an *Agricultural* College; and grew out of a plain and wide-spread want for colleges peculiarly agricultural in character. Schools of Medicine, Law, Engineering, Drawing and Design, Mining &c., were to be found by any young man seeking for them. That which lacked was schools of Agriculture and the Mechanic Arts. The Mechanic Arts are mostly trades. The rules to be followed in them are comparatively fixed and certain. The manuals that give these rules are abundant, clear, and exact.

The persons engaged in any one trade, are, as compared with those engaged in agriculture, exceedingly few.

It seems therefore, peculiarly proper that this College, supported as it is, and founded as it was, should remain a peculiarly Agricultural College. It would be unwise, were it possible, to duplicate in any way the University of Michigan at Ann Arbor, already the pride and glory of the State. It will be time for this College to extend its special instruction to a variety of the mechanical arts when it has funds from the endowment with which to do so.

Another reason for the same is: that it would be unwise further to complicate an exceedingly complicated and wholly new kind of College. Let it have time to establish itself in that character which is its essential one. Let it not attempt, at first, too much. It will not be difficult afterwards to add to it other branches of industrial education, as there shall be means and demand. The President of the College takes this opportunity to say that a department for the instruction of ladies is an addition to the College peculiarly proper to be made. Why should they not have the knowledge of chemistry, of mechanics, of heat, meteorology, attend the lectures in dairy management, &c., which the College furnishes to young men? And why not give them that general culture which the College is fitted to bestow on all its students? Danger is always apprehended, of course, from admitting ladies to those affairs of life from which they have generally been excluded. It is a relief on the other hand to know that as fast as they do secure a new position in the eyes of the law or by social usage, the threatened dangers never follow them. In general, the desirableness of extending the College instruction so as to cover various mechanic arts is not denied, but it seems fittest at present to wait until the College, as an Agricultural one, can sustain an adequate corps of professors, and be equipped with proper libraries and means of illustration.

BOARD OF AGRICULTURE.

Our State, wiser in this than many others, made the Board having control of the College a small one. Eight is the entire number. They—and in this feature the wisdom of the State is not so apparent—are obliged to serve without compensation, other than they get from the honor of having charge of an institution kept by the State, so small in capacity of receiving students, as to be bandied about the newspapers in a way not pleasing, certainly, to its sensitive friends. The gentlemen composing the Board of Agriculture are almost always present at its five or six meetings which it is necessary to hold yearly, thus giving the State some three or four weeks services, at the least, each year; while some of them give much more time. Some States, with larger Boards, find a quorum at one time composed of a majority—not composed of the same members that made a majority at a former meeting, so that the acts of one meeting are reversed at another. In the Board of this State the utmost harmony has always prevailed.

PUBLICATIONS OF THE COLLEGE.

The College has published an annual Catalogue since and including 1861.

A Report of the State Board of Agriculture, yearly, since and including 1862. These reports contain always an account of *receipts and expenditures* of the College. They contain full *meteorological records*, since, and including April, 1863. The volume for 1867 contains the Transactions of the *State Agricultural Society*. The reports contain:

Law of reorganizing the College, Constitutional provision; United States Land Grant; and Acts of the State relating thereto. Reports 1863, pp. 109–130.

Remarks on In-door Course of Instruction, 1862, p. 6. 1863, p. 10.

Out-of-door Instruction, 1863, pp. 14–17.

Relation of Farm and Instruction, Rules, 1863, pp. 45–50.

Report on Influence of Labor System on Students, 1864, p. 110.

Experiments on use of Muck, 1863, pp. 50–71.

" Top-dressings to Grass lands, 1864, pp. 117–119.

" " " " 1865, pp. 235–239.

" in Agricultural Chemistry, 1866, pp. 51–54.

" in Practical Agriculture.

" in Top dressings to Grass lands, 1866, p. 55.

" in Manures to Corn, 1866, p. 57.

" on feeding of pigs, p. 59.

" sheep feeding, 1867, pp. 39–52.

Meteorology of Central Michigan, 1865, pp. 241–253.

Grand Traverse Country, 1867, 79–102.

Brief History of the College, 1863, pp. 22–33.

The Cooley Herbarium, and life of Dr. Cooley, 1863, pp. 19–21.

Pedigrees of Fatalist, and other stock, 1863, pp. 77–83.

Description of College live stock, 1866, pp. 11–15.

Donations to the College:—Implements; crops; destructive insects; reports of county societies, and many articles of general interest throughout the reports.

LITERATURE.

A few of the many articles regarding Agricultural Education and Agricultural Colleges, is given here. As to the *need* of an education for farmers, the literature is in fragments, yet abundant. Here is proof, in a quotation from the London Times: "Farmers don't like Schools." Here is another from the same high authority: "Of course a man may be a good farmer and not able even to read and write." The agricultural journals of England and Scotland have had many fine articles on Agricultural Education within a few years; and it is painful to see how much the spirit of the *Times* pervades them. Farmers, from their comparative isolation, are the last class to combine for mutual improvement. The late agricultural lectures at Amherst brought in but few, it is said, of the farmers of the region to hear them; the late course at the Illinois Industrial College

brought almost none from beyond the immediate vicinity of the College. Again, even if the advantages for agricultural education were as good as those for medicine or law, the nature of agriculture is so complex, its operations so obscure, that its development would be necessarily slow. "Of the pursuits of man," says Carey in his Social Science, "the last developed is a scientific agriculture. Of all people, the last emancipated are the laborers in the field; of all knowledge, the last obtained is that of the minute machinery with which nature works when she seeks to produce her greatest effects." The large and increasing class of agriculturists who think as well as work, has called the Agricultural College into being, and ask for its liberal support; and it is no objection to it, that there remains a large class who see no good in an agricultural education.

Gail Hamilton has an admirable article in the Atlantic Monthly for July, 1864, called "Glorying in the Goad." The text is from the Apocraphy, Eccles. xxxviii, 26.

The best article in favor of uniting the College with the University, is in the Transactions of the State Agricultural Society, (Michigan,) 1854, pp. 342 to 355, by Prof. A. Winchell, of the University.

The best article (perhaps) on the difficulties in the way of keeping educated men upon farms, is "Wilson Flagg's Prize Essay on Agricultural Education," in Massachusetts Agriculture for 1858. It contains *virtually* an answer to the last named article.

The question of the expediency of independent colleges of agriculture, or of making them departments of universities, is the subject of Michigan House Documents, 1863, No. 18 and No. 19; of several paragraphs of the report of D. Hitchcock, of Amherst, Mass., to the Legislature of that State, Massachusetts House Doc., 1851, No. 13, p. 70; to be found, also, in Michigan State Agricultural Society Transactions for 1854, p. 394

Accounts of European schools may be found in the Massachusetts document just referred to; a more recent and full ac-

count by Mr. Charles L. Flint, in Massachusetts Agriculture, for 1864. Also in Barnard's National Education in Europe.

An account of the Agricultural Colleges of the United States is given by Hon. Henry F. French, in U. S. report, Department of Agriculture, for 1865, pages 137 to 186.

The action of the several Legislatures relative to the Congressional grant, and the laws establishing colleges under it, are given in U. S. Reports, Department of Education, for 1867–8.

A history of the U. S. Legislation on the subject, and much other matter is given by Prof. Ailman, of Yale College, in the North American Review for October, 1867.

Clear exposition of the meaning of the U. S. grant in general, is given in various reports on organization of the several colleges, or of Legislative Committees. There may be especially noticed Dr. E. O. Haven, (now of Michigan University), in Massachusetts Senate Doc., 1863, No. 108, p. 6, *et seq.*, and President Welch's report on organization of Iowa Agricultural College, just issued.

The papers of Prof. A. B. Turner, of Jacksonville, Illinois; addresses of Hon. Jos. R. Williams, first President of the Michigan Agricultural College; addresses and Report of John H. Klippart, Secretary of Ohio State Board of Agriculture; Treatise of Lewis Bollman, on Industrial Colleges; Fred. Law Olmstead's "Few things to be thought of;" Report on Plan of Organization of Colleges for Agriculture and the Mechanic Arts, by Dr. Pugh, of the Penn. Agric. College, 1864; Report of President White, on "Organization" of Cornell University, (Oct. 21, 1866); and plans and reports numberless, make up a part of the literature of this subject. These form one branch of that wider subject of general interest at the present time—industrial education.

Many topics remain to be spoken of, but the length of this report makes it inexpedient to do so at this time. It only remains to add, that as this report has not been submitted to either Board or Faculty, they are not responsible for it.

T. C. ABBOT, *President.*

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THE

STATE AGRICULTURAL COLLEGE,

MICHIGAN.

REPORT OF PRESIDENT CLUTE,

For the Year Ending June 30, 1891.

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AGRICULTURAL COLLEGE P. O., MICH., May 1, 1892.

To HON. J. RUSK,

Secretary of Agriculture,

And HON. JOHN W. NOBLE,

Secretary of the Interior:

SIRS—In accordance with the requirements of the Acts of the 51st Congress, Session 1, Chapter 841, I beg leave to submit to you my report for the year ending June 30, 1891, accompanied by the Annual Catalogue of the State Agricultural College 1890-91, and the Annual Report of the Secretary of the State Board of Agriculture of the State of Michigan, for the year ending June 30, 1891.

Very respectfully,

O. CLUTE,

Pres. Mich. Agr'l College.

The State Agricultural College,

MICHIGAN.

REPORT OF THE PRESIDENT.

The Michigan Agricultural College was organized in accordance with a demand of the people of Michigan. The early settlers of Michigan came mainly from New York, New England, Pennsylvania and Ohio. They brought with them the devotion to popular education which had then given those States a most honorable record, and which has since brought their common schools, colleges, normal schools and universities to a most enviable position. In Michigan this interest in education shaped the common schools, organized the State University, which has become so great an honor to Michigan and to America, called into life such denominational colleges as Hope and Hillsdale, Albion and Olivet, and founded the State Normal School at Ypsilanti. It also had early expression in a demand for an Agricultural College.

Discussion in educational and agricultural papers and in addresses at agricultural and educational associations had so paved the way, that the convention called in 1850, for the revision of the State constitution, contained a number of influential friends of an Agricultural College, among them Hon. Samuel Clark of Kalamazoo, Hon. Joseph R. Williams of St. Joseph, who afterwards became the first president of the College, and Hon. Hezekiah G. Wells of Kalamazoo, who afterwards was for eighteen years president of the Board of Agriculture which controls the College.

In this convention on Monday, June 10, 1850, Samuel Clark offered the following resolution which was adopted: "*Resolved*, That the Committee on Education be instructed to inquire into the expediency of providing for the establishment of an Agricultural School and model farm connected therewith." The Committee on Education reported a provision which was adopted as a part of the State Constitution. It is contained in Sec. 11, Art. 13, and is as follows: "The legislature shall encourage the promotion of intellectual, scientific and agricultural improvement, and shall, as soon as practicable, provide for the establishment of an Agricultural School." The same section gave the legislature power to appropriate twenty-two sections of salt spring lands to aid in the support of such school. Having secured the constitutional provision, the friends of the Col-

lege continued their efforts. Strong influences were at work to make the Agricultural School a department of one of the other State schools, but these efforts did not prevail.

The friends of the school were able to secure from the legislature of 1855, an act for the organization of the State Agricultural College, which was approved February 12 of the same year. By this act the President and Executive Committee of the State Agricultural Society were authorized to purchase a location for the College and farm within ten miles of Lansing. The State Board of Education was instructed to erect buildings and provide for the opening of the school, and an appropriation was made to begin the work.

The committee of the State Agricultural Society met in Lansing on the 16th of June, 1855, to select the location. They were most hospitably received by the citizens of Lansing at a large gathering in the State House, which was ably addressed by the secretary of the society, John C. Holmes, always one of the most devoted friends of the College. The committee chose a location consisting of 676 acres in the townships of Meridian and Lansing, about three and one-half miles east of the city of Lansing.

Plans were secured, contracts let, and building operations begun. May 13, 1857, the buildings were formally dedicated. Hon. Joseph R. Williams was inaugurated as president and the College was opened. The first buildings consisted of the large brick structure now known as College Hall, a small boarding hall capable of accommodating about 80 students if very closely crowded, and a small brick barn. A few months later four brick cottages were added as dwellings for professors.

The students at once filled the Boarding Hall to overflowing. The classes were carefully organized, and work by the students upon the farm for three hours each day was promptly undertaken. This regular farm work has been continued from that time until now, but owing to the difficulty of providing work for a large number the hours have been decreased to two and one-half per day, the lowest legal limit.

President Williams was a man of much ability and of great force of character. He was a graduate of Harvard College in the class with Motley, the historian, Wendell Phillips, the great agitator, Dr. Morrison, for many years the editor of the *Unitarian Review*, and others scarcely less famous. He had thought much on the subject of agricultural education. In his mind manual labor was an essential part of such education, and thorough training in the English language, mathematics, and the sciences bearing upon agriculture were equally essential. The course of education begun at the College when it first opened under his presidency included all these elements to which the developments of thirty-five years have but given greater scope.

In the early part of 1860 he resigned the presidency, after giving the College a trend which it has ever since followed. He was suc-

ceeded by Dr. T. C. Abbot, who continued in the chair until 1885, when failing health led him to retire. He was followed by Hon. Edwin Willits, Principal of the State Normal School, who resigned in 1889 to accept the Assistant Secretaryship of Agriculture at Washington. He was succeeded by the present incumbent, O. Clute, a graduate of the College in its second class, that of 1862.

The general policy of the College, outlined in the inaugural address by President Williams, is to educate men in industrial pursuits in such a way as will fit them to pursue those callings profitably and at the same time to take their place among the influential leaders in the affairs of the county, the state and the nation. To do this the College adopted a four-year course including those subjects that bear upon agriculture and those that go to make the educated citizen. In the thirty-five years of the life of the College this course has evolved into what is now called the "Agricultural Course." It is as follows:

AGRICULTURAL COURSE.

(Numerals denote the number of hours per week.)

Freshman Year.

AUTUMN TERM.—Algebra, 2. Ancient History, 5. English, 5. Geometry, 3. Rhetoricals, 2.

SPRING TERM.—Agriculture, Lectures, 5. Algebra, 3. Drawing, Free Hand, 10. Geometry, 2. Rhetoricals, 2.

SUMMER TERM.—Algebra, 3. Botany, 5. Geometry, 2. Rhetoric, 5.

Sophomore Year.

AUTUMN TERM.—Agriculture, Lectures, half term, 5. Algebra, 2. Botany, Lectures, half term, 5. Geometry, 3. Surveying, 2. Field Work, in surveying, one afternoon per week. Trigonometry, 3. Essays, two during the term.

SPRING TERM.—Botany, Laboratory Work, 9. American Literature, 3. Rhetoric, 5. Rhetoricals, 2. Military Tactics, half term, 5.

SUMMER TERM.—Systematic Botany, 2. Elementary Chemistry, Lectures, 5. Chemical Manipulations, 2. Landscape Gardening, Lectures, 3. Physics, 5. Rhetoricals, 2.

Junior Year.

AUTUMN TERM.—Anatomy, Lectures, 2. Laboratory Practice, 1. Organic Chemistry, Lectures, 5. Physics, half term, 5. Moral Philosophy, half term, 5. Blow-pipe and Volumetric Analysis, Laboratory Practice, 5. Shakespeare, 1. Horticultural Essays. Public Speeches.

SPRING TERM.—Analytical Chemistry, 10. Horticulture, Lectures, Laboratory, 5. Human and Comparative Physiology, Lectures, 5; Laboratory, 15, for two weeks. Shakespeare, 1. Military Tactics, half term, 5. Physiological Essays. Speeches.

SUMMER TERM.—Agriculture, 5. Agricultural Chemistry, Lectures, 5. Entomology, Lectures, 5; Laboratory Practice, 2. Shakespeare, 1. Essays in English Literature.

Senior Year.

THREE STUDIES REQUIRED.

AUTUMN TERM.—Botany or Forestry, Lectures and Laboratory Practice, 10. Chemical Physics, Laboratory Practice, 10. Veterinary Science, Lectures first ten weeks, dissection last two weeks, 5. Zoölogy, Lectures, 5; Laboratory Practice, first ten weeks, 3. Two Critical Essays in English Literature. Speeches.

SPRING TERM.—Civil Engineering, Lectures, 5. Constitution of the United States, half term, 5. United States History, half term, 5. Geology, Lectures, half term, 5. Horticulture, Lectures and Laboratory Practice, half term, 5. Meteorology, Lectures, 5. Psychology, 5. Veterinary Science, Lectures and clinical instruction, 5. Essays in United States History, 2.

SUMMER TERM.—English Literature, 4. Milton, 1. Political Economy, half term, 5. Finance, Lectures and References, half term, 5. Logic, 5. Veterinary Science, Lectures and clinical instruction, 5. Quantitative Analysis. Laboratory Practice, 10. Speeches.

When in 1862 the Morrill Bill was passed by Congress granting lands to the several states for the support of schools where the "leading object" shall be instruction in those studies which relate to agriculture and the mechanic arts, the Michigan Agricultural College had already been in successful operation for five years. It had so many friends in the state that all attempts to lead the legislature to divert any part of the Morrill grant to any other institution were frustrated. The legislature accepted the conditions of the grant, devoted the proceeds to the State Agricultural College, provided for locating the land on the National domain in Michigan, and for its care and sale. As the minimum price was fixed at $2.50 per acre, and as there was an abundance of land in Michigan to be had at a price even less, the sales for some years were slow. Not until 1885 did the income from the lands warrant the establishment of the complete mechanical instruction contemplated in the act of Congress. In that year the legislature made an appropriation for a Mechanical Laboratory which was at once built. Equipment was procured for a wood-shop, blacksmith-shop and iron-shop; professors were engaged and the mechanical department opened in August of that year. It has from the first been successful. In 1887 the shops were enlarged. Constant additions have been made to the equipment. The course of instruction has been carefully arranged to give students a knowledge of those branches which tend to train directly in the line of mechanic arts, and also of those branches which tend to train the citizen and the man. The course is as follows:

MECHANICAL COURSE.

(Numerals denote the number of hours per week.)

Freshman Year.

AUTUMN TERM.—Algebra, 3. Geometry, 2. English, 5. Rhetoricals, 2. Mechanical Drawing, 8. Shop Work, 10.

SPRING TERM.—Physics, 5. Algebra, 2. Geometry, 5. Freehand Drawing, 8. Rhetoricals, 2. Shop Work, 8.

SUMMER TERM.—Physics, 4. Physical Laboratory, 2. Rhetoric, 5. Descriptive Geometry, 5. Geometry, 3. Shop Work, 10.

Sophomore Year.

AUTUMN TERM.—Trigonometry, 5. Work shop methods, 2. Algebra, 5. Descriptive Geometry, 5. Shop Work, 12. Two Essays.

SPRING TERM.—Electricity and Magnetism, 5, one-half term. Tactics, 5, one-half term. Drawing, 5. Surveying, 2. Surveying (field work), 2. Rhetoric, 5. Physical Laboratory, 2. Shop Work, 8. Rhetoricals, 2.

SUMMER TERM.—Calculus, 5. Analytical Geometry, 5. Drawing, 5. Rhetoricals, 2. Shop Work, 10.

Junior Year.

FALL TERM.—Modern Language, 5. Chemistry, 5. Chemical Laboratory, 2. Calculus, 5. Shop Work, 10. Speeches. Rhetoricals. Translations.

SPRING TERM.—Modern Language, 5. Chemical Laboratory, 2. Solid Analytical Geometry, 5, one-half term. Analytical Mechanics, 5, one-half term. Tactics, 5, one-half term. Shop Work, 8. Speeches. Rhetoricals. Translations.

SUMMER TERM.—Modern Language, 5. Analytical Mechanics, 5. Kinematics, 2. Strength of Materials, 3. Mechanical Laboratory, 2. Drawing, 5. Shop Work, 5. Rhetoricals. Translations.

Senior Year.

FALL TERM.—Analytical Mechanics, 3. Graphical Statics, 2. Heat, 5, one-half term. Thermodynamics, 5, one-half term. Elements of Mechanism. 5. Drawing, 4. Physical Laboratory, 3. Shop Work, 8. Speeches.

SPRING TERM.—Civil Engineering or Electricity and Magnetism, 5. Thermodynamics and Steam Engine, 5. Machine Design, 5. Machine Drawing, 5. Shop Work, 12.

SUMMER TERM.—English Literature, 5. Valve Gears, 5, one-half term, and Political Economy, 5, one-half term, or Astronomy, 5. Thesis Work, 9. Mechanical Laboratory, 3. Physical Laboratory, 6. Speeches.

The Agricultural Course and the Mechanical Course just mentioned are the only courses of instruction given by this College. All of its large and valuable equipment, all of its generous income, all of the efforts of its able faculty are devoted to teaching "such branches of learning as are related to agriculture and the mechanic arts." This is done in the full belief that the branches of instruction now given here are worthy of the undivided attention of any faculty, and in loyalty to the spirit of the State and National laws which have given us our equipment and our endowment.

In the Agricultural Course the first class graduated in 1861. It contained seven men. Two of these, Henry D. Benham and Gilbert A. Dickey, died in the army during the great rebellion. Of the remaining five A. N. Prentiss has been for many years Professor of Botany at Cornell University, Ithaca, New York; Albert F. Allen of Vineland, Kansas; Adams Bayley of Troy, Michigan; and Chas. E. Hollister of Laingsburg, Michigan, are successful farmers; and L. V. Beebe of Utica, New York, is special agent of the New York Life Insurance Co. There has always been a strong trend among the graduates toward agricultural pursuits, about fifty per cent of them engaging in some branch of farming or becoming presidents or professors of Agricultural Colleges, or workers in experiment stations. Graduates of the College have found official positions in the Colleges or experiment stations of twenty-six States. One graduate has a prominent position as Director of Agriculture under the government of Queensland, and one has gone to organize an Agricultural College in Sao Paulo, Brazil. It has been a not infrequent experience that young men who came to the College from farms where methods and home influences were so crude and distasteful as to give them a strong dislike for farming, have been so changed by life at the College that when they graduated they entered with spirit into the farmer's life, which has come to have for them new meanings and new methods.

Up to June 30, 1891, there have been 508 graduates. The smallest number in any class was two in 1866, the class having been depleted by the great excitement of the Civil War; the largest number was 43 in 1889. The first graduates from the mechanical course went out so recently that complete knowledge of their occupations is not at hand, but it is known that a large proportion of them are engaged in mechanical callings. Students from both courses have the training that gives them confidence in practical affairs; they can take hold with energy of whatever work comes to hand and do it with success. They are independent, self-supporting, have the practical touch, have the ability and the spirit to work.

The State of Michigan has given generous sums to pay for farm, buildings, equipment and current expenses. It has given in all $901,889.34. Of this sum the amount of $495,635.24 has been for land, buildings and equipment. Until 1885 it was necessary for the legislature to make appropriations for the regular current expenses,

which appropriations from 1857 to 1884 amounted to $362,083.60. The full amount of money given by Michigan to its State Agricultural College for land, buildings, equipment and current expenses is therefore $901,889.34, as mentioned above.

That the Michigan Agricultural College was organized and in successful operation several years before any appropriation by Congress for Agricultural Colleges, and that the State has appropriated the above munificent sum to meet its needs are most significant facts in the development and prosperity of the College. These facts show that our College grew out of an appreciation among our people of the great importance of agricultural education, an appreciation so strong that they were willing to appropriate generous sums to begin the work of such education at a time prior to any general agitation of the subject.

When Michigan accepted the land granted by the Morrill bill of 1862, the land was not immediately rushed into the market and sacrificed for a few dimes per acre, but was located in Michigan and a minimum price of $2.50 per acre put upon it, which subsequently was advanced to $5.00 per acre. By thus putting a fair price on the land it became necessary for Michigan to appropriate money for the current expenses of the College for several years longer, for the land did not sell rapidly at the prices fixed. But by this careful and economical method the sum realized from the land thus far sold now amounts to $453,719.44, and the College has still 115,216 acres of land for sale, which, when sold, will very largely increase the endowment. Surely Michigan deserves honor for its early devotion to the cause of agricultural education, for its zeal in beginning the pioneer College in agriculture at a time when the State's great resources were but slightly developed, for its many and large gifts to this College continued to this day, for its careful husbanding of the munificent congressional grant of land, and for its strong determination to devote the endowment, so generously provided by State and Nation, to the support of a College where the "leading object" is instruction in the branches that relate to agriculture and the mechanic arts.

The College farm was begun in the oak woods in 1857. To clear off the forest, remove the stumps, subdue the land, put in underdrains, and bring fields to a fertile condition has taken many years. Now we have 350 acres in farm crops. During the year we produced 120 tons of hay, 700 bushels of wheat, 2,500 bushels of oats, 1,600 bushels shelled corn, 500 bushels potatoes, 600 bushels roots, 150 tons of silage, and smaller quantities of several minor crops. We have on the farm 40 cattle, 8 horses, 70 sheep, 55 swine. About 10 acres are devoted to vegetable gardens, 5 acres to small fruit, and about 35 acres to orchards, including apple, pear, cherry, and plum trees and a somewhat large miscellaneous collection grown for experiment and illustration. The College campus includes about 100 acres. It is covered with lawn and has large numbers of such native and exotic trees and shrubs as will endure this climate, among

which run the walks and drives that connect the various dormitories, laboratories, shops, dwellings and barns. There are still about 160 acres of woodland,—oak, beech, maple.

The oldest building at the College is College Hall, built in 1856 at a cost of $20,000. It contains on the first floor the chapel, and the class room and offices for the Professor of Mathematics and Civil Engineering; on the second floor are class-rooms for the Professor of English and the Assistant Professor of Mathematics, and four rooms occupied by assistants; on the third floor are class-rooms for an assistant in Mathematics and an assistant in English, and the large free-hand drawing room.

The Agricultural Laboratory, built in 1890 at a cost of $7,700, is a good brick building, devoted especially to the classes in Agriculture, and to some other needs of the farm. The equipment for this laboratory includes not only books, maps, charts, etc., but all the fields, barns, machinery, stock and tools of the farm, for these are in daily use in illustrating the lessons of the class-room. Omitting the value of the land, the equipment for this laboratory has cost $31,572. The Horticultural Laboratory is used for classes, work-rooms, and offices by the garden department. It is of brick and cost $6,000. Near it are two of the forcing houses, intended mainly for experiments, which cost $1,500.

The old greenhouse in another part of the grounds has served us for twenty years. This year it will be replaced by a new one to cost $4,500. Adjacent to the greenhouse are two forcing houses, and the florist's residence, also hot-beds, cold-frames, pits, etc., all of which belong to the equipment of the Horticultural Department. The whole equipment of this department has cost $13,600. This does not include cost of land, drives, walks, trees and shrubs, all of which are extensive and indispensable facilities for instruction.

The Mechanical Laboratory was built in 1885 and 1887, at a cost of $10,800. Its equipment has cost $10,700. It contains the wood-shop, blacksmith shop, iron-shop, experimental rooms, drawing rooms, one recitation room, and the office for the Mechanical Department. Many recitations of students in this department go on in other laboratories and class-rooms.

The Chemical and Physical Laboratory, built in 1871, and added to in 1881, at a cost of $18,000, gives good accommodations to the chemical and physical departments. The equipment of the Chemical Laboratory has cost about $9,000, and that of the Physical Laboratory nearly $7,000.

The Veterinary Laboratory is specially adapted to veterinary work. The building cost $5,400, and the equipment $2,200.

The Zoölogical Department occupies the second story of the Library and Museum Building. This building cost $25,000, and in addition to the Zoölogical Laboratory contains the Library, Reading-room, President's offices and Secretary's offices. The general museum adjoins the zoölogical lecture-room, and a large part of its

contents was procured for the special use of the zoölogical department. Including the cost of this museum the zoölogical equipment has cost $16,780.

The Botanical Laboratory, built in 1880, was destroyed by fire in 1890. It was the first building in America devoted specially to botanical uses. In it were trained not a few botanists who are now doing good work in positions of honor in many different States. In 1891 the State legislature appropriated $10,000 to build another laboratory, which will be put up in 1892. The Herbarium is large, and additions are being made to it rapidly. This, with microscopes and other apparatus, has cost $3,650.

The Department of Mathematics and Civil Engineering has its class-rooms and offices in College Hall, where it is well supplied with all apparatus needed for its work. This apparatus has cost $3,070.

The study of the English Language has from the first been a very important part of the course of instruction. It has always been in charge of able men, well trained for their work. The results of the training have, on the whole, been satisfactory in giving students a command of their native tongue, and in cultivating a taste for the best literature. This department has good class rooms and offices. Its equipment does not make any show of microscopes, tools, machines, etc., but it is supplied with the books necessary for its work. During the coming year important additions to the library will give much improved facilities to this department.

The increased attention given to the study of history and political economy during the last twenty-five years has called for increased facilities in this department. The time given to these studies with us has recently been added to materially, and valuable additions have been made to the books on history, economics, biography and travel and to the atlases, maps and charts.

Free-hand Drawing is an indispensable part of our training. Having received an elementary course in the freshman year the student is required to use his skill all through his studies in botany, agriculture, horticulture, anatomy, zoölogy, entomology and mechanics. The free-hand drawing room is supplied with all needed appliances of the most approved kind. Mechanical drawing is carried on nearly every term during the four years of the mechanical course. The mechanical drawing rooms in the mechanical laboratory are furnished with tables of superior design, and with superior facilities of very description.

The students are housed in three dormitories—Williams Hall, built in 1869 at a cost of $40,000, Wells Hall, built in 1877 at a cost of $25,000, and Abbot Hall built in 1888 at a cost of $13,000. The first dormitory, built in 1857 and long known among the students as "Saints' Rest," was burned some years ago. For the professors there are eleven residences, and a large apartment building with eight suites of six rooms each. Some of the unmarried teachers room in the students' dormitories.

In addition to the buildings mentioned above there are many barns for various purposes, sheds, shops, etc. The whole number of buildings is 55.

The library has been gradually collected during the last thirty-five years. At the beginning of the year it included 12,277 bound volumes and 3,075 unbound volumes. During the year there have been added 913 bound volumes, and 201 unbound volumes. The total number in the library now is 13,190 bound volumes, and 3,276 unbound volumes; total, 16,466. In some departments the library is becoming a very good working collection. No attempt has been made to secure books valuable merely for their rarity or antiquity, but in all cases the worth of a volume for the present needs of teachers and students has been the controlling reason for buying it. In agriculture, horticulture, veterinary, stock-breeding, dairying, entomology, botany, chemistry, mechanics and mathematics, the books now on the shelves have satisfied the requirements of students very well, yet all these departments need immediate additions. In physics, history, political economy, finance, biography, travel and English literature, there is need of many new works. An attempt will be made to supply these needs, at least in part, during the coming year. Professors, workers in the experiment station and students make much use of the library. The disposition to use it increases from year to year. Indeed the method of teaching in most departments compels students to refer constantly to the best books of the ablest writers.

The method by which a system of education is pursued is hardly less important than the system itself. A good method of teaching has often saved a poor system from utter failure. An inferior method has often brought failure to the most wisely planned system. In the Agricultural College we are still, in some measure, believers in text-books. At the stage of training at which our students come to us there is wisdom in using the book. To assign a lesson from the book, and expect that lesson to be learned, and to be recited in class, is for nearly all topics and students a method that gives good results. In addition to the text-book the word of the live teacher is an indispensable force in teaching. The teacher explains, enforces, enlarges on the text. In some branches with us a share of the instruction is by lectures, but the professor constantly refers to the text-books and library books, and the lectures are supplemented by laboratory work.

In all departments of our college the instruction is largely carried on by the laboratory method. The *labor*-atory is the place for labor. The student labors at what he is to learn, applying in the labor such principles as he has already learned. In mathematics this has long been the method in every school throughout the world, for the student having learned, from the text-book or the instructor, certain rules and methods applies these in the solution of many examples or problems. The tendency among many modern educators is to

extend this method to all studies. In our College the student in English language is set to work with the language, its history, its structure, the relation of its parts, its use, its analysis and synthesis. In English literature he studies masterpieces of style and thought, he learns what are the elements that make them great, that enable them to appeal to noble minds in every age and in every walk of life.

If the laboratory method is thus used in mathematics and English, much more is this the case in all the natural sciences. Here every step is a study of things. In botany the plant, in entomology the insect, in zoölogy the animal, in geology the fossil or the rock, in chemistry the simple or the compound is always before the eye, and can be manipulated as desired. The microscope, the scalpel, the hammer, the test-tube, or the reägent is always at hand to aid in learning what the thing has to reveal.

This laboratory method includes with us another element which we consider essential, that is our labor system, which is but a phase of the laboratory method. In animal physiology the student does not become an expert by looking on while some other person does the dissecting; he himself must use the knife for a period sufficiently long to acquire some skill in its use. In chemistry the student does not learn the use of all the complicated apparatus by seeing it used by others; he uses reägent and balance, filter and blow-pipe until they are as familiar to his fingers as the playthings of his boyhood. Agriculture in its varied phases of general farming, dairying, stock-breeding, stock-feeding, gardening and fruit growing uses many tools an machines, produces many and very varied products. A student dan learn the use of these tools and machines and the managementcof these many products only by actual labor with the things. He may listen to able lectures on the hoe and its use with profit; but a few we eks' use of the hoe will give him a better control of that useful tool than many courses of lectures. He may see his professor set cions and buds in the most approved manner, but he will learn how to set them only by using wax and knife and bast himself. By our system of teaching and of labor, the farm, the stables, feeding pens, silo, cellars, gardens, orchards and forcing-houses all become parts of a great agricultural laboratory in which the student learns to do by doing. To this "doing" he devotes some hours each day for five days of the week.

In mechanical pursuits there is the same need to learn the use of tools and material by using them. Hence our wood shop with its many exercises; our blacksmith shop where the student, working with pleasure at the forge and anvil, learns by experience that his hands and face may be blackened by unaccustomed grime without his descending in the social scale; and our iron shop in which the use of all the improved machinery for working in iron is successfully taught. Labor on farm, in gardens, wood shop and iron shop is thus an essential part of our educational system. It was introduced when the College first opened under President Joseph R. Williams

in 1857, was adhered to in all the pioneer vicissitudes of a new departure in education, has grown into the very fibre of our work. We are glad to believe that we have contributed something of value to the successful solution of manual training in the higher education.

The legislative enactment of 1855, organizing the College, gave its control into the hands of the State Board of Education which also had control of the Normal School at Ypsilanti. The difficulties in the way of the development of the College were then so numerous and its growth was so slow that many of its eager friends became dissatisfied with its management under the Board of Education, and the Board was anxious to be freed from a burdensome and thankless task, hence in 1862, an act of reorganization was passed by the legislature in which the Board of Education was relieved of the control of the College, and the control was vested in the State Board of Agriculture where it has since remained. The Board has eight members including the Governor of the State and the President of the College who are members *ex-officio*. With the consent of the Senate, the Governor appoints two members of the Board at the beginning of each second year to serve for six years. The members receive no compensation. The main duty of the Board is the control of the State Agricultural College. In recent years it meets once a month. There have always been among its members some men devoted to that phase of education to further which the College was organized, who have had the firmness to hold the College to its course, and the patience to wait for the growth and appreciation that seemed at first to be so slow.

The following is the present membership and organization of the Board:

	Residence.	Term Expires.
Hon. Franklin Wells, - - - - President of the Board.	Constantine,	1895
Hon. Chas. W. Garfield, - - -	Grand Rapids,	1893
Hon. I. H. Butterfield, - - -	Lapeer,	1893
Hon. A. C. Glidden, - - -	Paw Paw,	1895
Hon. Henry Chamberlain, - - -	Three Oaks,	1897
Hon. Edwin Phelps, - - -	Pontiac,	1897

Hon. Edwin B. Winans, Hamburg, Governor of the State, *Ex-officio.*

O. Clute, Agricultural College, President of the College, *Ex-officio.*

Henry G. Reynolds, M. S., Secretary.

B. F. Davis, Treasurer.

During the year from June 30, 1890, to June 30, 1891, all departments of the College have been in successful operation. There have been some changes in the faculty by able professors or assistants being called to larger salaries elsewhere, but in most cases we have

been fortunate in securing able men to take their places. The enrollment of students for the year was 360. The following table gives the enrollment by classes and sexes:

STUDENTS 1890-1891.

	Men.	Women.	Total.
Post Graduates,	32	5	37
Freshmen,	109	4	113
Sophomores,	93	9	102
Juniors,	42	1	43
Seniors,	33	4	37
Specials,	16	12	28
			360

Of these students 233 were in the Agricultural Course and 127 in the Mechanical Course.

Our annual commencement occurred on August 19, 1891. At this time 32 students were graduated with the degree of Bachelor of Science. Of these 31 were men and one was a woman. In the Agricultural Course the graduates numbered 23, in the Mechanical 9. At this commencement the degree of Master of Science was conferred on 7 students who were already Bachelors of Science and who had completed the course of study prescribed for the higher degree.

The College year is fixed by State law at not less than nine calendar months. In carrying on farm work labor is more needed in summer than in winter, and it is also much easier to provide farm labor for a large number of workers during the summer. Hence in the early history of the College the long vacation was put in the winter, the regular session extending from the last of February to about the middle of November. After some years' experience it proved most convenient to have the exercises of the graduating class occur about the 15th of August, hence the year now ends at that time, and the next year begins about August 25, the first, or fall term extending to about the middle of November, when the long vacation begins and extends to the last of February, followed by the spring and summer terms. This arrangement, adopted at first as best for the farm and garden work, proves valuable to many of the young men in another way. They are dependent on their own labor to pay their school expenses. If industrious they can earn about $45 by their work at the College on farm or garden during the three terms. If qualified to teach a district school, as most of them are at the close of the fall, or first, term of their freshman year, they can earn from $75 to $150 by teaching during the winter vacation. By strict economy not a few of them are thus able to graduate free from debt. Those students who are not so fortunate as to be dependent on themselves find the winter vacation a most favorable time for home pleasures or for study in other schools.

The faculty and other officers engaged in class-room, field, garden,

shop, office, library and other duties connected with the administration of the College have been as mentioned below:

O. Clute, M. S., President.

Theophilus C. Abbot, LL. D., Emeritus Professor of Mental Philosophy and Logic.

Robert C. Kedzie, M. A., M. D., Professor of Chemistry and Curator of the Chemical Laboratory.

Albert J. Cook, M. S., Professor of Zoölogy and Entomology, and Curator of the General Museum.

William J. Beal, M. S., Ph. D., Professor of Botany and Forestry, and Curator of the Botanical Museum.

E. A. A. Grange, V. S., Professor of Veterinary Science.

Henry G. Reynolds, M. S., Secretary.

William F. Durand, Ph. D., Professor of Mechanical Engineering and Director of the Shops.

Wendell L. Simpson, 2d Lieut. 24th Infantry, U. S. A., Professor of Mathematics and Civil Engineering.

Levi R. Taft, M. S., Professor of Horticulture and Landscape Gardening, and Superintendent of the Horticultural Department.

Eugene Davenport, M. S., Professor of Practical Agriculture, and Superintendent of the Farm.

Howard Edwards, M. A., LL. D., Professor of English Literature and Modern Languages.

John J. Crittenden, 1st Lieut. 22d Infantry, U. S. A., Professor of Military Science and Tactics.

Frank S. Kedzie, M. S., Adjunct Professor of Chemistry.

William S. Holdsworth, M. S., Assistant Professor of Drawing.

Philip B. Woodworth, B. S., M. E., Assistant Professor of Physics.

Alvin B. Noble, B. Ph., Assistant Professor of English Literature and Modern Languages.

Nathan D. Corbin, M. S., Assistant Professor of History and Political Economy.

Henry Thurtell, B. S., Assistant Professor of Mathematics.

Lyster H. Dewey, B. S., Instructor in Botany.

Luke C. Colburn, B. S., Instructor in Mechanics.

James W. Toumey, B. S., Instructor in Botany.

Frank J. Niswander, B. S., Instructor in Zoölogy.

Charles F. Wheeler, B. S., Instructor in Botany.

William J. Meyers, B. S., Instructor in Mathematics.

Warren Babcock, Jr., B. S., Instructor in Mathematics.

Jane S. Sinclair, Librarian.

Justus N. Estabrook, B. S., Assistant Secretary.

Louis Knapper, Florist.

Edgar A. Burnett, B. S., Assistant in Agriculture.

Alfred G. Gulley, M. S., Foreman of the Horticultural Department.

William H. Van Dervoort, B. S., Foreman of Iron Shops.

Albert R. Curtiss, Foreman of Wood Shops.

Henry Munn, Foreman of the Farm.

When, in 1887, Congress appropriated to each State the sum of $15,000 annually to be expended in conducting experiments in agriculture, Michigan accepted the grant, and established the experiment station at our College. We had already been experimenting for some years and had published many bulletins and reports giving the results. In this early experiment work the President of the College had been general director, and the Professors in different departments had carried on the experiments in their departments. This system worked well. Hence after the Hatch Bill had passed Congress, we simply turned our experiments over to an experiment station organized under the provisions of that bill. We continued the President of the College in the office of director of the experiment station, and the heads of certain departments were made heads of corresponding departments of the experiment station. This method gave us at once in the station a body of men trained in the work, knowing what experiments need to be tried, and the best methods of conducting them. And it also added to the educational facilities of the College, for the experiments conducted under the supervision of each head of a department are often available for the instruction of his classes or the classes of a fellow professor; moreover in some experiments students can assist, and be greatly benefited by the educational character of the work. Again our method made use of our present plant in the way of offices, implements, stock, and apparatus, thus giving a large amount of available experiment plant for immediate use, and saving a large expense in duplicating offices and apparatus already on the grounds. As before the Hatch Bill was passed our method had worked well, so it has worked well since we organized under that act. In several of the departments the experiments have already reached results of much value, and our bulletins, giving a statement of such results, have been widely sought after.

These bulletins during the past year number thirteen. They have the following titles:

No. 70, Vegetables—Varieties and Methods.
" 71, Beet Sugar.
" 72, Six Worst Weeds.
" 73, Kerosene Emulsion.
" 74, Foot Rot in Sheep.
" 75, Inspection of Commercial Fertilizers.
" 76, Kerosene Emulsion and its Uses.
" 77, Comparing the Yield of Old Meadows with those Recently Seeded.
" 78, Glanders and Farcy.
" 79, Vegetable Tests.
" 80, Fruits.
" 81, Fruit Notes.
" 82, Sugar Beets in Michigan.

These bulletins have had a circulation of 7,000 copies each when

issued from month to month. They are all republished in the report of the State Board of Agriculture above referred to, and may be found from p. 160 to p. 342.

The Experiment Station is controlled by the State Board of Agriculture. The following is the list of the Station Staff and Assistants, June 30, 1891:

OFFICERS.

O. Clute, M. S.,	Director.
Eugene Davenport, M. S.,	Agriculturist.
L. R. Taft, M. S.,	Horticulturist.
Robert C. Kedzie, M. A., M. D.,	Chemist.
Albert J. Cook, M. S.,	Zoölogist.
Wm. J. Beal, M. A., M. S., Ph. D.,	Botanist.
E. A. A. Grange, V. S.,	Veterinarian.
J. S. Sinclair,	Librarian.
Henry G. Reynolds, M. S.	Secretary and Treasurer.

ASSISTANTS.

L. A. Clinton, B. S.,	Director's Office.
E. A. Burnett, B. S.,	Agriculture.
P. G. Holden, B. S.,	Agriculture.
H. P. Gladden, B. S.,	Horticulture.
H. J. Hall, B. S.,	Horticulture.
A. B. Peebles, B. S.,	Chemistry.
W. L. Rossman, B. S.,	Chemistry.
G. C. Davis, M. S.,	Zoölogy.
Chas. F. Wheeler, B. S.,	Botany.

For a complete statement of our funds and lands, income from State, Nation, and other sources, expenses of all kinds, and inventory of farm, buildings, and equipments I beg to refer you to the report of the Secretary of the State Board of Agriculture for the year ending June 30, 1891, a copy of which is sent by this mail. The subjects referred to will be found on page 10–24.

Very respectfully,

O. CLUTE,

President Michigan Agricultural College.

Agricultural College P. O., Mich., May 1, 1892.

Telegraph and Freight Address, Lansing, Mich.

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CHIGAN AGRICULTURAL COLLEGE

THE PRESIDENT'S REPORT

TO THE

STATE BOARD OF AGRICULTURE

FOR THE ACADEMIC YEAR

ENDING JUNE 30, 1898

LANSING
ROBERT SMITH PRINTING CO., STATE PRINTERS AND BINDERS
1898

MICHIGAN AGRICULTURAL COLLEGE

THE PRESIDENT'S REPORT

TO THE

STATE BOARD OF AGRICULTURE

FOR THE ACADEMIC YEAR

ENDING JUNE 30, 1898

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1898

PRESIDENT'S REPORT.

To the Honorable, State Board of Agriculture:

Gentlemen—I have the honor to submit herewith my report as president of the Michigan State Agricultural College for the year ending June 30th, 1898.

As my two previous reports have been necessarily very brief, I shall in this report endeavor to give a more extended account of the work of the College since I took charge as President.

The College since its organization in 1857 has had six presidents: Pres. J. R. Williams served from '57 to '59. There was then an interregnum of three years during the greater part of which time Prof. L. R. Fiske was acting president. Dr. T. C. Abbot was president from 1862 until 1885. He was followed by Dr. Edwin Willets from '85 to '89—Dr. O. Clute from '89 to '93—Prof. Lewis G. Gorton from '93 to '95. The present incumbent was elected Feb. 11, '96. He was present at the opening of the Spring Term, Feb. 24th, but did not take full charge until March 20th. At this time the long vacation occurred from November to February and a term was held during the summer months. It will be seen from this that he has had charge now eight terms or two and one-third years.

At the first meeting of the State Board during the present administration it was decided to change the long vacation from winter to summer and during the winter in connection with the regular College work to offer special six-week courses in dairying, live stock husbandry, fruit culture, floriculture and winter vegetable gardening.

At the next meeting of the Board a resolution was passed providing for the addition to the College of a women's department. A four-year course of study for women was outlined and Abbot Hall was set apart for their exclusive use.

All these changes had been under discussion for some time by the Faculty, State Board and other friends of the College and it was the almost unanimous opinion of those concerned that the proper time had come to make these important changes. The two years' experience under the new order of things vindicates the wisdom of the Board's action.

CHANGE OF LONG VACATION.

Conditions in Michigan have changed very much during the last forty years. When the College was opened the long vacation was placed in the winter principally for the following reasons: It was held that practical agriculture could be taught to much better advantage during the summer months—that students could by work on the College farm during the summer defray to a large extent their expenses for board; that during the long winter vacation they could teach district schools and thereby earn enough together with their income from work on the farm to pay all their

expenses. This plan worked well for many years and was without doubt the best course to pursue at the time the College was founded and for many years thereafter.

But in time the farm became cleared, drained, and fenced and work could not be provided for a large body of students during the summer. The practical agriculture which could be taught during the harvest time was usually such as most students had learned, or could easily learn, at home. The work of our country schools has so changed that very few good schools now have short winter terms, such as a student could teach during a winter vacation of three months.

It has been the policy of the College to endeavor to educate farmer boys for the farm: to give them such a knowledge and inspiration along the various lines of agricultural work as would induce them to follow this calling after leaving College. The old system of having students teach during the winter was not conducive to this end. The young man after entering College was home only a few days at a time until he graduated. His experience in teaching usually made it easy for him to enter that profession after graduation.

Within the last few years the Mechanical and Women's Courses have been added. For the students of these two courses it is preferable to have the long vacation occur in the summer. Special short courses could be successful only if held in the winter when busy men could leave home to attend them.

These and other reasons induced the Board to make the change. The results of the change have been very gratifying both to the Faculty and to the students. Practical Agriculture is taught during the spring and fall. Students of agriculture who have not learned the ordinary operations of farm work before coming to College will be required to spend one long vacation on the College farm. It is believed that young men who spend their summers at home on the farm will be much more likely to return to the farm after graduation.

SPECIAL COURSES.

The change of the long vacation from winter to summer made it possible for the Board to carry out the plan of offering special courses in practical agriculture to those energetic farmers who could not find time to take a long College course. During the winter term of '96-'97 the College offered special six-weeks' courses in the following: (1) home dairying, (2) live stock husbandry, (3) fruit culture, (4) floriculture and winter vegetable growing. The classes had the following attendance: The first 18, the second 15, the third 10, and the fourth 2.

During the winter of '97-'98 in addition to the courses given the previous year, there were given also a four-weeks course in cheese making and a course of six weeks in dairy management and butter making. The course in cheese making was limited to a class of twenty members. It was under the able instruction of E. L. Aderhold of Wisconsin. Nearly all the students of this class were experienced cheese makers and were thus prepared to receive a great deal of good from this course.

The other courses had the following attendance: creamery management and butter making 26, home dairying 7, live stock husbandry 9, fruit culture 4.

While these courses were well advertised there was no material increase in attendance over the preceding year. In some there was a decided dropping off.

Men ranging in age from fifteen to sixty-two years attended. They have almost without an exception shown great interest in their work and have gone away from the College expressing themselves as well pleased with the attention and instruction given them.

These courses do not seem to have interfered in any way with the attendance or work of the long courses. The fear entertained by many friends of the College that the special courses would draw stndents away from the long courses does not seem to have been well founded. The four years course in agriculture is likely to gain more students than it will lose from the special courses. The history of the past two years indicates very plainly that while the special courses will be successful they will not attract in this College the large number of young farmers that have been attracted to the institutions of some of our western states. In such institutions the long courses in agriculture have very few students. The special courses are popular and attract to them many young men, who if they were residents of this state would enter our four years course.

It will not be a matter of very great regret if our special courses do not attract more than fifty or seventy students each winter so long as a hundred or more enter our four years course in agriculture each year.

WOMEN'S DEPARTMENT.

The Department for young women has been in operation for two years. The design is to give a good college education in which the science and art of home-making shall be a prominent feature. We endeavor to so train young women that they will be able to apply science to the ordinary duties of the home. At the same time we give them a training in music, art, modern languages, literature, and such other studies as will develop them into broad minded, cultured women. The course as outlined attracted attention at once. It seems to meet in the minds of many people a long felt want. As long as ninety per cent or more of our young women have later in life to take charge of their own homes or some other body's home, why should not their education to some degree at least prepare them for this work? Why should all that is practical be omitted from a young woman's education? Why should not science be compelled to relieve women of much of the drudgery of life just as it has accomplished this for men?

When the College was thrown open to young women Abbot Hall was renovated and furnished for their use. An additional story was added to the rear wing and fitted up as a cooking laboratory.

Miss Edith F. McDermott, a graduate of Drexel Institute, Philadelphia, was placed at the head of the Department. She also taught classes in cooking and acted as matron of the dormitory. During the first year 42 young women were enrolled, 17 of whom lived in Abbot Hall.

At the beginning of this, the second year, three teachers were added to this department, a matron, a teacher of sewing and an instructor in music. There have been in attendance this year 82 young women. During the greater part of the year Abbot Hall has been full. It will not accommodate more than forty.

The rapid growth of the department will make it necessary to provide more room in the near future or turn many young women away. A private boarding house is being erected on the delta north of the College. Arrangements have been made with the owner of this building, Mrs. Backus, to accommodate twelve young women next year.

Summary of students in attendance during this year.

	Agrl.	Mech'l.	Women's.	Totals.
Graduate Students				5
Class of '98	26	6	4	36
Class of '99	21	16	2	39
Class of '00	20	30	19	68
Class of '01	101	82	34	217
Specials	11	6	22	40
Total				405

Special short courses: Fruit, 4; cheese, 19; creamery, 26; farm dairy, 7; stock 9.
Total short course, 65.
Total number of students, 470.

Number of students entering each year from 1887-97:

1887	128
1888	126
1889	127
1890	153
1891	132
1892	130
1893	131
1894	126
1895	145
1896	108
1897	135
1898	244

Number of students entering this year, not including those in special short courses:

	Male.	Female.	Total.
Number entering	190	54	244
Average age	19, 9 m.	22	
Median age	19, 4 m.	19, 7 m.	
Support while here:			
Father	103	35	138
Self	56	17	73
Father and self	24	2	26
Not given	6	----	6
Government	1	----	1
Occupation of father:			
Farmer	92	21	113
Civil engineer	----	1	1
Minister	3	----	3
Lawyer	3	----	3
Merchant	16	4	20
Manufacturer	9	4	13
Insurance	4	2	6
Real estate	6	2	8
Physician	4	----	4
Traveling man	6	----	6
Railroading	5	----	5
Laborer	8	----	8
Clerk	8	2	10
Deceased	16	9	25
Miscellaneous	10	9	19

Proposed occupation after leaving college:			
Farming	45	----	45
Mechanical engineering	53	----	53
Teaching	14	18	32
Electrical engineering	4	----	4
Physician	2	----	2
Law	2	----	2
Not fully decided	70	36	106
Schools previously attended:			
High School	115	35	150
District	52	11	63
College	11	4	15
Private	12	4	16
Entered freshman class on			
High School diploma	46	13	59
Teacher's certificate	20	10	30
Standings from other colleges	----	5	5
Examination	93	15	108
Age	31	11	42

Counties represented in last freshman class:

Alger	1	Kalamazoo	7
Allegan	3	Kent	12
Barry	4	Lapeer	3
Bay	2	Lenawee	5
Benzie	2	Livingston	4
Berrien	7	Mackinac	1
Branch	1	Macomb	3
Calhoun	2	Marquette	1
Cass	7	Montcalm	3
Charlevoix	3	Monroe	1
Clinton	1	Oakland	11
Crawford	3	Oceana	1
Eaton	7	Osceola	1
Emmet	3	Ottawa	7
Genesee	8	Saginaw	11
Grand Traverse	1	Sanilac	2
Gratiot	2	Shiawassee	9
Hillsdale	4	St. Clair	3
Houghton	1	St. Joseph	4
Huron	4	Tuscola	3
Ingham	56	Van Buren	2
Ionia	6	Washtenaw	2
Isabella	1	Wayne	5
Jackson	4		
Indiana	1	Vermont	1
Illinois	1	Wisconsin	2
New York	1	Australia	1
Ohio	1	Turkey	1
Pennsylvania	1		

FACULTY AND OTHER OFFICERS.

JONATHAN L. SNYDER, Ph. D., President; [a b c] Feb. 11, '96.

ROBERT C. KEDZIE, M. A., M. D., Professor of Chemistry and Curator of the Chemical Laboratory; [a b c] Feb. 25, '63.

WM. J. BEAL, M. A. Ph. D., Professor of Botany and Forestry and Curator of the Botanical Museum; [a b] July 9, '70; [c] Feb. 22, '71.

LEVI R. TAFT, M. S., Professor of Horticulture and Landscape Gardening, and Superintendent of the Horticultural Department, [a b c] Aug. 1, '88.

HOWARD EDWARDS, M. A., LL. D., Professor of English Literature and Modern Languages; [a b c] Aug. 25, '90.

HERMAN K. VEDDER, C. E., Professor of Mathematics and Civil Engineering; [a b c] Sept. 15, '91.

IRA H. BUTTERFIELD, Secretary; [a b c] July 1, '93.

CLINTON D. SMITH, M. S., Professor of Practical Agriculture and Superintendent of the Farm; [a b c] Sept. 1, '93.

CHAS. L. WEIL, S. B., Professor of Mechanical Engineering and Director of the Mechanical Department; [a b c] Sept. 1, '93.

WALTER B. BARROWS, S. B., Professor of Zoology and Physiology, and Curator of the General Museum; [a b c] Feb. 15, '94.

HARRY H. BANDHOLTZ, First Lieutenant Seventh Infantry, Professor of Military Science and Tactics; [a b c] Sept. 1, 96.

EDITH F. MCDERMOTT, Professor of Domestic Economy and Household Science; [a b c] Sept. 1, '96.

GEORGE A. WATERMAN, V. S., Professor of Veterinary Science; [a b c] Sept. 1, '97.

FRANK S. KEDZIE, M. S., Adjunct Professor of Chemistry; [a b] Sept. 15, '80; [c] Jan. 1, '91.

PHILIP B. WOODWORTH, B. S., M. E., Assistant Professor of Physics; [a b] May 22, '87; [c] Aug. 7, '89.

WILLIAM S. HOLDSWORTH, B. S., Assistant Professor of Drawing; [a] Feb. 22, '81; [b] Aug. 22, '87; [c] Jan. 1, '90.

ALVIN B. NOBLE, Ph. B., Assistant Professor of English Literature and Modern Languages; [a b c] Sept. 1, '89.

CHARLES F. WHEELER, B. S., Instructor in Botany; [a b] Mar. 1, '90; [c] May 1, '93.

WILBUR O. HEDRICK, B. S., Assistant Professor of History and Political Economy; [a b] Aug. 24, '91; [c] Sept. 1, '93.

WARREN BABCOCK, JR., B. S, Assistant Professor of Mathematics; [a b] June 30, '91; [c] Sept. 1, '93.

HERBERT W. MUMFORD, B. S., Assistant Professor of Animal Husbandry; [a b] Sept. 1, '95; [c] Dec. 1, '97.

MRS. LINDA E. LANDON, Librarian; [a b c] Aug. 24, '91.

A. L. WESTCOTT, B. M. E., Instructor in Mechanical Engineering; [a b c] June 1, '93.

DICK J. CROSBY, B. S., Instructor in English; [a b c] Sept. 1, '93.

MERRIT W. FULTON, B. S., Instructor in Agriculture; [a b c] Sept., '95.

BURTON O. LONGYEAR, Instructor in Botany; [a b c] Feb. 15, '94.

GORDON H. TRUE, Instructor in Dairying; [a b c] Sept. 1, '94.

HARRY E. SMITH, B. S., Instructor in Mechanics; [a b c] Sept., '96.

RUFUS H. PETTIT, B. S. A., Instructor in Zoölogy; [a b c] Sept., '97.

MRS. MAUD A. MARSHALL, Instructor in Music; [a b c] Sept., '97.

MRS. JENNIE L. K. HANER, Instructor in Sewing; [a b c] Sept., '97.

WILLIAM O. BEAL, B. S., Instructor in Mathematics; [a b c] Sept., '97.

J. D. TOWAR, Agriculturist, Experiment Station; [a b c] June 15, '98.

H. P. GLADDEN, B. S., Experiment Station, Assistant in Horticulture; [a b c] Apr. 8, '89.

M. L. DEAN, Experiment Station, Assistant in Horticulture; [a b c] Feb. 1, '96.

L. S. MUNSON, B. S., Experiment Station, Assistant in Chemistry; [a b c] Sept. 1, '97.

C. E. MARSHALL, Ph. B., Experiment Station, Bacteriologist; [a b c] July 1, '96.

KENYON L. BUTTERFIELD, Supt. Institutes and College Field Agent; [a b] June 1, '95, [c] July 1, '95.

MRS. HARRIET G. BACON, Matron of Woman's Dormitory; [a b c] Oct. 1, '97.

THOMAS GUNSON, Foreman of Greenhouse; [a b] April 1, '91; [c] Sept. 1, '91.

W. S. LEONARD, Foreman of Iron Shop; [a b c] Sept. 1, '96.

CHACE NEWMAN, Assistant in Wood Shop; [a b] Dec. 1, '92; [c] Sept. 1, '97.

W. R. BRADFORD, Foreman of Wood Shop; [a b c] Sept., '97.

E. C. BAKER, Foreman of Foundry; [a b c] Sept., '97.

F. E. SKEELS, Assistant Secretary; [a b c] Oct. 1, '97.

FRED C. KENNEY, Assistant Secretary; [a b c] Sept 18, '95.

CHARLES H. ALVORD, B. S., Foreman of Farm; [a b c] Apr. 1, '98.

CHARLES WOOD, Foreman of Horticultural Department; [a b c] May 15, '98.

EDWIN S. GOOD, Clerk to President; [a b c] July 15, '96.

PLINY M. LYMAN, Clerk Secretary's Office; [a b c] Oct. 1, '97.

F. L. NEWELL, Engineer, [a b c] Jan. 1, '98.

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[a] First appointment.
[b] Present appointment.
[c] Present title.
[d] Resignation.

RECENT CHANGES IN FACULTY.

Dr. E. A. A. Grange resigned his position as Professor of Veterinary Science at the close of last year to accept the Deanship of the Detroit Veterinary College. Dr. Grange served the College very ably and faithfully for a period of fourteen years, during the greater part of which time he was also State Veterinarian.

Dr. Geo. A. Waterman, a graduate of the College with the class of '91 and since professor of Veterinary Science in the Storrs Agricultural College, was elected to the position made vacant by the resignation of Dr. Grange.

Mr. Cyrus C. Pashby, B. S., resigned as instructor in mathematics at the close of last year and Mr. W. O. Beal, a graduate of Earlham College, Ind., and Haverford College, Pa., was elected to fill the vacancy.

A. A. Crozier, assistant agriculturalist of the Experiment Station, found it necessary on acount of failing health to sever his connection with the College, June 15, 1898. Mr. Crozier had been connected with the College for about five years and during all this time rendered exceptionally valuable service. His fine qualities of mind and heart make his loss very much felt by all his associates. Mr. J. D. Towar, a graduate of the College with the class of '85, of the Rhode Island Experiment Station, was elected to the position of agriculturist of Experiment Station.

At the opening of the year Mrs. Jennie K. L. Haner, a graduate of Pratt Institute, Brooklyn, N. Y., was elected instructor in Sewing and Mrs. Harriet G. Bacon, Matron of the Women's Dormitory. Mrs. Maude Marshall was employed as instructor in Music.

At the close of the fall term Mr. Charles E. Hoyt, the efficient Foreman of the woodshops and foundry, resigned to accept a similar position in the Lewis Institute, Chicago. On account of difficulty in finding a person who could teach both woodwork and foundry Mr. C. E. Baker was employed to teach the foundry work and Mr. W. R. Bradford to instruct in shop work and pattern making. These men have spent many years in productive work and their instruction is valuable from a practical standpoint.

The unusually large class necessitated the employment of assistant instructors in several departments.

Mr. Chace Newman, who for several years had been clerk to the head of the Mechanical Department, assisted in Mechanical Drawing and Shop Work.

Miss Lilian Wheeler, '93, assisted in mathematics.

Mrs. Linda E. Landon, librarian, taught two classes in English and Mrs. Ella Kedzie assisted one term in free hand drawing.

During the fall term Mr. D. B. Baldwin, College Engineer, resigned and Mr. L. F. Newell was elected to fill the vacancy. The heating and water department which had for some time been under the direction of the Mechanical Department was placed in charge of the College Engineer.

Mr. Thomas A. Durkin, who had been Foreman of the Horticultural Department for four years, resigned on May 1st, and Mr. Chas. Wood, Napoleon, Mich., was elected to this position.

FACULTY MEETINGS.

The President has had the coöperation and loyal support of all the members of the Faculty and teaching force. They have shown a ready willingness to carry out his plans and have spared no efforts to make the College successful in all its undertakings.

The weekly meetings of the Faculty were abandoned more than a year ago. The Faculty now meets on the first Monday of each month. Special meetings are called by the President when deemed necessary.

Matters of importance that would regularly come before the Faculty are referred before hand to the committee to which they naturally belong, or a special committee is appointed by the President to consider the case in hand. These committees report to the Faculty at its regular meetings and their reports are usually adopted without discussion. This method of procedure divides the work of the Faculty among the committees and does away with long weekly Faculty meetings. It is believed also that in a general way the work is better done than when discussed at length and settled by the Faculty as a whole.

STANDING COMMITTEES OF FACULTY.

Library—Edwards, Beal, F. S. Kedzie, Taft, Weil, Secretary.
Catalogue—Edwards, Taft, Butterfield.
M. S. Degree—Kedzie, Vedder, Smith, Miss McDermott.
Entrance Examinations—Barrows, Noble, Babcock.
Labor and Wages—President, Butterfield, Smith.
Excuse for Drill—Bandholtz, F. S. Kedzie, Weil.
Senior Courses—President, Smith, R. C. Kedzie, Edwards.
Excuse from Work—Taft, Smith, Weil.
Athletics—Vedder, Weil, Bandholtz.
Uniforms—Bandholtz, Butterfield.
Society and Entertainment—Edwards, Weil, Miss McDermott.

WEEKLY MEETINGS OF TEACHERS.

All teachers of freshmen meet on the second Monday evening of each month from five to six. The teachers of sophomores on the third Monday, and the teachers of juniors and seniors on the fourth Monday. In these meetings teachers compare notes and discuss the weaknesses and peculiarities of the different students under their care and are thus enabled to give encouragement and help where it is most needed.

These meetings bring professors and assistants of the different departments together and gives to each a better understanding of the work of the College outside of his own department.

The members of the Faculty do a great deal of work which is not directly associated with the instruction of students. In connection with Farmers' Institutes, the members of the Faculty during the winter of '95 and '96 did 74 weeks' work; in '96 and '97 they worked 50 weeks and in '97 and '98, 25 weeks. The change of the long vacation from winter to summer makes it much more difficult for members of the Faculty to do institute work.

This service was given without any expense to the State except for car fare and hotel bills. The College very frequently furnishes speakers for farmers' meetings, such as celebrations, picnics, grange meetings, etc.

The correspondence of a number of the departments is very large. Every day brings many letters of inquiry along the various lines of work carried on at the College. These are all carefully answered, which very often requires several hours of a professor's time. Some idea of the immense correspondence carried on by the College officers may be gained when attention is called to the fact that the College post office which is

used almost exclusively by the College is a "presidential" or fourth class office.

The Experiment Station, which is a department of the College, issued sixteen bulletins during the year, containing about 450 pages.

RELIGIOUS EXERCISES.

As has been the custom since the College was first opened, brief religious exercises begin the work of each day. These exercises are conducted by the President or some member of the Faculty, and consist of scripture reading, singing from "Gospel Songs" and prayer.

The street car line was extended into the grounds last fall, thereby making the College practically a part of the city of Lansing. It was thought advisable to try to induce each student to attend the church of his choice or own denomination in Lansing.

The regular preaching service held in the Chapel each Sunday afternoon and conducted by one of the Lansing ministers was discontinued and instead a chapel service, consisting of devotional exercises and an address, is held at 9 o'clock in the morning. These meetings are conducted by some member of the Faculty or promient person from outside of the College.

The winter program was as follows:

President Synder, "Martin Luther and the Reformation."
Dr. R. C. Kedzie, "The Forgiveness of Sin."
C. F. Hammond, Esq., Lansing, "John Calvin."
Dr. Howard Edwards, "John Knox."
Prof. Herbert Mumford, "John Wesley."
Prof. C. D. Smith, "Rodger Williams."
C. B. Collingwood, Esq., Lansing, "Jonathan Edwards."
Prof. A. B. Noble, "Cardinal Newman."
Dr. Geo. B. Waterman, "Prof. Drummond."
Prof. Walter B. Barrows, "Henry Ward Beecher."

During the Spring Term the following program was successfully carried out:

April 10—Prof. J. C. Bartholf, Battle Creek, Mich., Editor of Youths' Instructor. "The Gospel of Individualism."

April 17—Prof. S. B. Laird, Supt. of Lansing Public Schools, "The Source of Light."

April 24—Hon. H. R. Pattengill, Ex-State Supt. of Public Instruction, "Made in America."

May 1—Rev. W. G. Sperry, D. D., President of Olivet College.

May 8—Hon. C. B. Grant, Chief Justice of the Supreme Court of Michigan, "Young Men and the Enforcement of Law."

May 15—Mrs. Cyrus Smith, Lansing, Mich., "Shakespeare's Moral View of Life."

May 22—Mr. Rollo K. Bryan, Lansing, Mich., founder of "Bethesda Mission," "A Chalk Talk."

May 29.—Mr. Samuel Dickey, Albion, Mich., Chairman of the National Prohibition Party, "The Student and the Liquor Traffic."

June 5—Hon. Jason E. Hammond, State Supt. of Public Instruction, "Self Examination on Year's Work in College."

June 12, 10:30—Rev. L. R. Fiske, D. D., Ex-Pres. of Albion College, Annual sermon to Y. M. and Y. W. C. A.

June 12, 8 p. m.—Rev. David McAllister, D. D., L.L. D., Pittsburg, Pa., Baccalaureate sermon, "Elements of Christian Patriotism."

Arrangements were made with the Lansing Electric Railway Co., by which the College was able to sell to students tickets good for one return trip each Sunday for term for twenty-five cents. With very few excep-

tions the students purchased these tickets and from the return coupons it has been found that on the average more than 70 per cent of our students living on the College grounds attended services at the Lansing churches each Sunday.

With good street car facilities at a nominal cost there is no reason why every young man and young woman who attends church when at home should not attend his own church regularly in Lansing. This we encourage students to do. The Lansing pastors welcome them gladly and they soon become acquainted and find a congenial church home.

The Young Men's Christian Association is a strong organization and does much good. It has fifty active members. It meets regularly on Thursday and Sunday evenings, and also carries on several classes in bible study. It has a large, comfortable room, neatly furnished, in Williams Hall, where its regular meetings are held.

The Young Women's Christian Association is comparatively young but is growing and has done very commendable work during the two years of its existence. It holds a regular meeting each Thursday evening and a union meteing with the Y. M. C. A. Sunday evenings.

Of the 217 freshmen who entered College last September, about 50 per cent were church members. These were divided among the various denominations about as follows: Methodist, 29 per cent; Congregationalists, 21 per cent; Presbyterian, 13 per cent; Episcopalian, 10 per cent; others, 27 per cent.

Many of those who are not church members belong to Christian families and are regular attendants.

The upper classes would likely show a much larger percentage of church membership as quite a number unite with the church during the period between entering College and graduation.

The religious and moral standard among the students is high. Swearing, obscene language, boisterous or unbecoming conduct at ball games or other times are very rarely if ever indulged in by students. The College can certainly feel proud of its clean, honorable, upright body of students.

Though not a sectarian institution, the Faculty is composed of Christian men and women who do not feel that their responsibility ends with class room instruction. They realize that better than knowledge gained from books or in the laboratory is a strong Christian character and above all other considerations they endeavor to impress their students with a keen sense of the realization of this great truth.

DISCIPLINE.

For more than twenty years, 1876-1896, the discipline of the College was intrusted to the student body.

The students carefully organized for this purpose under the direction and with the support of the Faculty, and adopted a constitution, by-laws and such other regulations as were deemed necessary to carry out a complete system of self government.

Prof. Geo. T. Fairchild, who was then at the head of the English Department and who was for many years the honored and efficient president of the Kansas Agricultural College, took a very active part in perfecting this organization. All the original documents are in his hand writing, and bear the impress of his cool, discriminating judgment. This fact is mentioned here to show that the plan was undertaken with great care and

deliberation on the part of the Faculty and was given, at least during its inception, all the support and encouragement possible by the members of the Faculty.

At that time the College was well adapted for the successful carrying out of such a plan. The number of students—less than two hundred—was not too large; there was but one course of study hence their interests were the same; they nearly all lived in the dormitories on the grounds and could be summoned together quickly and easily; the isolation of the College rendered it free from outside influences such as come to schools located within village or city limits.

As to the real success of the organization in carrying out the purposes for which it was originated the opinion of those who ought to know differs somewhat. From a limited opportunity to examine the College records and minutes of the Student Organization during these years I am led to believe that when the students took an interest in their organization and elected, strong, popular students as officers the self government plan worked quite satisfactorily to both students and Faculty. On the other hand it is quite evident that very often the organization drifted into the hands of those least fitted to control in such matters. When this occurred discipline became lax and often the Faculty was compelled to mete out punishment regardless of the wishes of the organization.

During the fall term of '96 the students' organization was at a very low ebb. The better element among the students were willing to give it up. The Faculty were equally willing to assume control. During the winter term the Faculty quietly exercised its authority and student government was a thing of the past at M. A. C. So quietly was the transition made that it is difficult to fix the exact time. No protests came from students. They seemed perfectly willing to relinquish all claims to authority and allow the Faculty to shoulder the responsibility and assume entire control.

A great many colleges have in recent years endeavored to carry out the student government idea, but in most cases the efforts have been of short duration. That such a plan should succeed in this College for more than twenty years is remarkable and probably stands without a parallel in the history of self government by college students.

The function of government in a college belongs to the President and Faculty. They are the governing board in all college matters and are in much better position to judge intelligently than is any body of students, however honorable and fair minded it may be.

The Faculty may delegate and transfer much of its authority to the student body, but this does not relieve it of one iota of the responsibility in connection with the successful management of the institution under its control. Patrons of the College and the public in general will hold the Faculty, and that very properly too, responsible for the way in which the institution is conducted. Why, then, should a Faculty give over to students' authority when it must from the very nature of the case stand responsible for whatever action they may take? To clothe them with the authority to try, convict and punish their fellow students certainly will not contribute to their development either as scholars or as law abiding citizens. Upon inexperienced young men it is very likely to have the very opposite effect.

Student government, with the earnest support of the Faculty, may succeed for a time, but the general experience seems to be that the better

element among the students, busy as they are with their work, soon become tired looking after their recreant brethren and lose interest in the plan. The organization then becomes inoperative or is controlled by an irresponsible class of students.

This is usually followed by the Faculty again taking charge.

CONTROL OF DORMITORIES.

About two hundred thirty young men live in Williams and Wells' Halls and the large Harrison House, which has been rented by the College for the accommodation of students. A member of the Faculty, during the past two terms Prof. W. O. Hedrick, looks after the care of students' rooms and order in the dormitories. The buildings are divided into six wards, each of which is under the care and supervision of a student appointed for this service by the professor in charge. He is usually an upper classman and also a high officer in the military department of the College. It is part of his duty to inspect every room at a designated time each morning and report failure on the part of any student to keep his room in a neat and sanitary condition. Regulations with reference to the cleanliness and care of rooms are very rigid and prompt compliance with these rules is insisted upon.

This inspecting officer is also held responsible for the conduct of students in his ward. He is required to report to his superior officer all violations of rules or misconduct of any nature.

The order in the dormitories during the past year has been very good. In two instances students who were inclined to be mischievous were promptly ejected and required to room outside the grounds.

The inspecting officers are paid eight dollars per term and their tenure of office depends altogether upon the faithfulness with which they do their work. Strong men are selected and so far they have been equal to every emergency that has arisen.

Abbot Hall, the women's dormitory, is under the care of a matron.

During last summer vacation every room in Wells and Williams Halls was thoroughly fumigated. Sulphur was burned in each room from six to seven hours. All furniture was fumigated and then varnished. In this way the dormitories were thoroughly cleansed and put into a first class sanitary condition. A special inspector has made a thorough inspection of every room and furniture several times during the year and reported all conditions as very satisfactory.

Average room-rent per term in Wells Hall	$4 92
" " " " " " Williams Hall	5 36
" " " " " " Abbot Hall	7 75
" " " " " " Harrison Hall	4 98

It is believed that these dormitories furnish much better accommodations than could be obtained in ordinary dwelling houses and at a very much less cost. On the average the cost does not exceed twenty dollars per year for each student, including steam heat and electric light.

Is it not also true that students are much freer from temptaton and less likely to go wrong than when scattered over a city and not under the direct care of anyone? If a student in a dormitory becomes reckless or acquires bad habits it becomes known at once and there is a chance to work a reformation before he is too far gone to be reclaimed, whereas, if he with one or two other students is rooming with a private family he

may be very far gone before it comes to the attention of the College authorities.

GENERAL DISCIPLINE.

In dealing with matter of discipline the Faculty has empowered the President, when any case needing attention arises, to call to his assistance such members of the Faculty as he may choose who, acting as a committee may investigate the matter and impose such punishment as the case in their judgment demands. At the next Faculty meeting the President reads the history of the case, giving the names of the committee, and the action taken, and this report is made a part of the Faculty minutes. The action of the committee is final and is not subject to the approval of the Faculty.

In this way the Faculty is often relieved of annoyance and judgment comes swift and sure to the wrong doer.

There have been very few cases of misconduct during the year.

THE CLUB BOARDING ASSOCIATION

is composed of all students who live on the grounds. When a student enters College he is required, if he boards in a club, to purchase a boarding certificate which entitles him to all the privileges of the association. The members of the association are asigned to clubs of which there are six. Each club has its own kitchen, dining room, cook, and waitresses, and can accommodate from fifty to sixty persons.

The general control of the association is in the hands of a board of managers composed of one representative from each club and the President of the College. Each club is under the direction of a steward who is elected by members of said club and who serves for one term. He employs the cook, buys provisions and is responsible for the management of the affairs of the club. For this service he receives twenty dollars per term.

The Board of Managers elect a bookkeeper who must be approved by the Faculty. All money is paid out by vouchers and the books are carefully audited at the end of each term. The Secretary of the College is the treasurer of the association.

The expenses of each club is divided equally among the members of that club.

At the beginning of this year a few students, who desired substantial board at the lowest possible cost organized an independent boarding club.

The average cost of board per week in each of the different clubs during the year was as follows:

	Average No. for year.	Average price.
Club A	47	$2 30
Club B	37	2 46
Club C (womens club)	38	1 53
Club D	51	2 14
Club E	50	2 22
Club F	28	1 83
Club X (independent club)	32	1 45
Average		1 98

The association has been very well managed and the question of board for students has given the College authorities very little trouble or care during the last few years. Occasionally on account of an inefficient steward or a poor cook a club may have trouble, but matters are righted very soon.

Very few students—not more than eight or ten—have done their own cooking during the year. This plan is discouraged and when a student is so short of funds as to absolutely require such a course on his part those in authority endeavor to find some work which will enable him to earn enough to pay his board in a club.

IMPROVEMENTS.

During the last four years, from January '95 to January '96, the College has been granted each year $6,000 by the State for repairs, and $3,000 for the years '95 and '96 for closets, and $5,000 for 1897 for electric light plant. As it requires the full amount of $6,000 per year to keep the buildings, heating, sewers and water plants in good condition there has been nothing left from these funds to apply to permanent improvements. The College has, however, used current fees to make a number of necessary additions to buildings which should have been done by appropriation by the State.

From the special appropriation toilet rooms have been placed in Williams, Wells and Abbot Halls, making these dormitories up to date in modern conveniences. These impovements were made two years ago and cost $3,000.

With the induction of the Women's Department it became necessary to have a cooking laboratory. As no suitable vacant room could be found it was deemed advisable to add another story to the rear wing of Abbot Hall, making it two stories—the same height as the other part of the building. This was done at a cost of about twelve hundred dollars. While the room is not first class in all particulars it answers quite well the purposes for which it was intended.

The steam heating system has been extended at a cost of over one thousand dollars to the Agricultural and Veterinary Laboratories. It is now used in seven of the largest buildings and will be extended to College Hall during the coming vacation.

The hot water furnace previously used in the Agricultural Laboratory was placed in the Armory and the building properly piped for a hot water system. It has given excellent satisfaction. The entire cost was about three hundred dollars.

A dairy barn for the accommodation of thirty cows has been added to the equipment of the Farm Department. The cost was eight hundred dollars.

Changes were made in the basement story of the Agricultural building and several hundred dollars worth of apparatus added for the special courses in dairying and cheesemaking.

Good bath rooms were placed in Abbot Hall and the bath house for young men was repaired and several shower baths added. The total cost for both was over four hundred dollars.

At the last regular meeting of the State Legislature the College was granted five thousand dollars for the installation of an electric lighting plalnt.

For the last three or four years, up to last January, the College grounds and a few of the College buildings had been lighted by an improvised system erected by the students under the charge of Prof. Woodworth. The dynamo was taken from a junk pile and much of the other apparatus had been purchased second hand and cost but a trifle. This was just a little better than no lights, and consequently the grant of $5,000 though entirely too small to purchase such a system as was desired was very much appreciated.

To know in what way to use this appropriation to best advantage was a perplexing question, but after many conferences and considerable delay it was finally decided to enter into a contract with A. A. Piatt of Lansing to furnish water power to run a dynamo. Thereupon the College purchased a fifteen hundred light Tesla Polyphase generator dynamo and placed it in Mr. Piatt's power house, southwest part of city of Lansing. Mr. Piatt erected line to College at an expense of over $2,000.00, furnishes power and attendance to run dynamo continuously, if desired, and on a five year contract receives $1,550 per year. This contract also includes current to run motor for farm department, which requires power to cut fodder, grind feed, run churns, cream separators, etc. The voltage of transmission from the power house to College is 2,000, which is reduced by transformer to 110 before entering buildings.

By this arrangement the College was enabled to purchase a first class dynamo and wire all the College buildings with material of the best quality. Bids were received for wiring and the contract was let to the Capitol Electric Lighting Co., of Lansing. All work was done in accordance with the rules laid down by the State Board of Underwriters and each building was carefully inspected by the State Inspector, who issued a certificate accordingly. These certificates are deposited with the Secretary of the College.

The present lighting system has been in operation since January first and has run without a break. It has in every way given excellent satisfaction.

Each employé of the College, each society, boarding club, etc., pays for lights used. The members of the Faculty pay from $12 to $30 each; society and boarding clubs $20 each per annum. The room-rent of each student was increased seventy-five cents per term when electric lights were placed in rooms. The income of the College from all sources for lights is about $1,350 per year.

In addition to this income the College class rooms, library, laboratories, offices and grounds are all well lighted.

There was placed in Station Terrace a complete hot water system costing about four hundred dollars.

The Experiment Station erected a large side hill forcing house during the summer of '96 at an outlay of $600.

A cold storage fruit house was also erected by the Experiment Station costing $1,000. This building was made to conform to the latest approved plans for such buildings and serves as a model for the fruit growers of the State.

Perhaps of all the improvements made recently the one appreciated most by students and visitors is the extension of the street car line into the College grounds. The line now enters the campus from the north and extends to the stone walk between Station Terrace and the dwelling house occupied by Dr. Edwards. As the State Board of Agriculture did not deem it wise to allow a corporation any rights on the College campus that portion of the road—600 feet—on College property was built by the College at a cost of $360. A neat waiting station has been placed at the terminus of the road and a new cement walk has been laid to join with other walks at College Hall.

Many other improvements of a minor nature have been made during the year, and while there are many other repairs and improvements which should be made, yet on the whole the buildings and grounds are at present in good condition.

EXCURSIONS TO THE COLLEGE.

Arrangements were made with the railroads to run excursions to the College last summer. August 17 the Grand Trunk sold excursion tickets from Battle Creek and intermediate stations. Over three hundred persons came to the College on this excursion.

The D., G. R. & W. ran an excursion from Holland and Grand Rapids on August 19 and landed about thirteen hundred people at the College. The same road on August 20 ran an excursion from Greenville and intermediate stations from the north, and from Plymouth from the east. It was estimated that about fourteen hundred visited the College on this day.

Nearly all of the visitors to the College with these excursions were good, substantial farmers who, while interested in the College, had never been on the campus before. As is usual with persons who visit the College for the first time they were very happily surprised at the beauty of the campus and the number and character of the buildings. The Library, laboratories, museum, green houses, dormitories, barns, gardens, orchards and farm were thoroughly and critically inspected. Many very favorable comments were heard from the visitors and all seemed much pleased with their visit.

It is believed that by means of these cheap excursions many farmers can be induced to visit the College each summer and as "seeing is believing" in most cases with those who visit the College may we not hope that through this agency the farmers of the State will come to know the College better and appreciate more fully what the College is doing for the agricultural interests of the State?

The excursions scheduled for next season are as follows:

1. Tuesday, August 16, Michigan Central R. R.: From Wayne, Ann Arbor, Jackson and intermediate points, to Lansing and return.
2. Wednesday, August 17, Grand Trunk R. R.: From points east of Lansing on C. & G. T. R. R. to Port Huron; from Pontiac and points intermediate to Durand on D., G. H. & M., and from all points on C., S. & M., to Lansing and return.
3. Thursday, August 18, Michigan Central R. R.: From Bay City and intermediate points (also on Ann Arbor R. R. from points between Mt. Pleasant and Owosso Junction) to Lansing and return.
4. Friday, August 19, Lake Shore R. R. (Lansing division): Hillsdale and intermediate points, to Lansing and return.

ADVERTISING.

With the very able assistance of the College Field Agent, Mr. K. L. Butterfield, a systematic course in advertising has been carried out. During this year there have been carefully distributed 5,000 College calendars, 18,000 envelope catalogues and 10,000 copies of the College year book, or perhaps more properly called the farmer's almanac. Nearly 5,000 copies of the regular College catalogue have been distributed principally upon request. In addition to the above many thousand copies of special circulars have been issued.

Special editions of the Record have been sent to over 6,000 young people of the State whose names have been sent to us by responsible parties. A limited amount of space in the agricultural, religious, and educational

papers of the State has been utilized at times during the year best suited to our needs.

A very large correspondence has been carried on by the President with young people anxious to secure a higher education. Every request for a catalogue has been honored and in addition a personal letter sent to the inquirer.

In all letters and publications the true purposes of the College have been emphasized. No bid has been made for students who expect to enter one of the learned professions, except, of course, the profession of Mechanical Engineering.

RESULTS OF LAST YEAR'S ADVERTISING.

Soon after the present school year opened a circular of inquiry as to the influences which persuaded each student to enter this College was sent to all the new students. One hundred seventy-nine replies were received. These are conflicting in many respects and perhaps do not signify anything very definitely.

The circular submitted, with the number of students answering each question in the affirmative is given below:

PRESIDENT'S OFFICE, Agricultural College, Mich, Oct. 8, 1897.

Please designate which of the following influences affected your decision to attend M. A. C.:

		14	15	16
1.	Any graduate of M. A. C.	62	32	17	13
2.	Any former student who did not graduate	52	32	18	16
3.	Any farmer not in the above two classes	12	6	3	1
4.	a. Any school teacher of yours	34			
	b. Was he a graduate or former student of this college	18	10	6	6
5.	Any college circulars that you read	26	10	8	4
6.	A catalogue of the college	101	50	37	43
7.	An advertisement in a newspaper	7	3	2	2
8.	"The M. A. C. Record"	44	14	27	10
9.	Any visit to the college by yourself or friends	62	19	16	22
10.	Anything said or done in any Grange or Farmers' Club	6	3	2	----
11.	Attending Farmers' institutes by yourself or parents	18	6	6	2
12.	Interview with M. A. C. professors	21	5	7	8
13.	Letters from the President or any other official of the college	57	12	12	21
14.	Which of the above, directly or indirectly, *first started* you to thinking of attending this college? See column 14.				
15.	Which of the above were most influential in keeping yourself or your parents *interested* in the college? See column 15.				
16.	Which of the above causes finally *decided* you, or were most influential in deciding you to enter? See column 16.				

Members of the Board, and other interested parties, are referred for further details concerning the several departments of the College to the department reports published in full each year in the report of the State Board of Agriculture.

J. L. SNYDER,
President.

FINANCIAL STATEMENT.

The following table shows the receipts and expenditures for the year ending June 30, 1898.

On account of.	Disbursements.	Receipts.
United States Treasurer, eighth annual payment under act of Congress August 30, 1890		$23,000 00
State Treasurer, United States Land Grant interest		55,000 00
Students' class fees		3,583 91
Students' sundry fees credited to building account		5,580 48
Salaries paid	$42,426 77	
Farm Department	8,686 84	5,015 79
Horticultural Department	4,131 38	912 26
Mechanical Department	3,009 38	
Heating, lighting and cleaning	11,965 86	
Academic Department—		
Chemical	1,161 70	
Zoölogical	647 72	
Botany	799 51	
Military	306 25	
Military and Athletics	303 70	
Veterinary	158 02	
Physics	550 37	
Mathematics	37 34	
History	15 50	
Drawing	129 89	
English	13 25	
Womens	737 25	
Library	1,263 88	
Miscellaneous	3,879 91	3,397 81
Office, postage, stationery, advertising and sundry	4,118 87	
Interest and exchange credited to building account		338 59
Contingent building account	8,182 01	
Totals	$92,525 09	$96,828 84
Balance at beginning of period July 1, 1897	134 67	
Balance at close of period June 30, 1898	4,169 08	
Footings	$96,828 84	$96,828 84

Experiment Station Account, July 1, 1897 to June 30, 1898.

On account of.	Disbursements.	Receipts.
Balance from last fiscal year		$2,779 12
United States Treasurer for fiscal year		15,000 00
Fertilizer, license fees and expenses		1,380 00
Salaries	$8,298 77	
Sundry	140 00	14 62
Farm Department	2,537 23	267 04
Horticultural Department	587 08	
Chemical Department	383 05	
Botanical Department	141 70	
Zoölogical Department	13 92	
Veterinary Department	1,079 81	
Buildings	1,452 39	
Library	220 84	
Office expenses	655 18	
South Haven Fruit Station	1,989 21	
Apiary	240 67	
Totals	$17,740 26	$19,440 78
Balance on hand at close of fiscal year	1,700 52	
Footings	$19,440 78	$19,440 78

MICHIGAN
AGRICULTURAL COLLEGE
CAMPUS
Scale of Feet
0
200
400
600
800
1–14. Faculty residences.
15. Observatory.
16. Hospital.
17. Street Car Station.
18. Abbot Hall.
19. Paint Shop.
20. Armory.
21. Chemical and Physical Lab.
22. College Hall.
23. Williams Hall.
24. Library and Museum.
25. Horticultural Laboratory.
26. Experiment Sta. Forcing House.
27. Botanical Laboratory.
28. Green House.
29. Side Hill Forcing House.
30. Union Literary Building.
31. Wells Hall.
32. Ice House.
33. Boiler House.
34. Mechanical Laboratory.
35. Veterinary Laboratory.
36. Carpenter Shop.
37, 38, 41, 43, 45, 47, 48, 49, 51, 52, 53, 54 Barns of various kinds.
39. Agricultural Laboratory.
40. Farm House.
42. Cold Storage and Fruit House.
44. Poultry House.
46. Residence of Inst. in Agricult.
50. Bath House.
MAIN DRIVE
FACULTY DRIVE
RIVER DRIVE
CEDAR RIVER
TOWNSHIP LINE
ELECTRIC R.R.
NORTH
FARM LANE

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M58aC
1906

Agricultural College Bulletin

Agricultural College, Mich., November 1906 Vol. 1, No. 5

Published Monthly by the Michigan State Agricultural College

Application made for entry at Agricultural College, Mich., as second class matter, under act of July 16, 1894.

AGRICULTURAL COLLEGE

BULLETIN.

Report of the President.

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Agricultural College, Mich., November 1906. - - Vol. I, No. V.
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AGRICULTURAL COLLEGE

BULLETIN.

Report of the President.

STATE BOARD OF AGRICULTURE.

	Term Expires
CHARLES J. MONROE, South Haven.	1907
PRESIDENT OF THE BOARD.	
HENRY F. BUSKIRK, Wayland,	1907
WILLIAM H. WALLACE, Bayport,	1909
AARON P. BLISS, Saginaw,	1909
ROBERT D. GRAHAM, Grand Rapids,	1911
THOMAS F. MARSTON, Bay City,	1911
WILLIAM J. OBERDORFFER, Stephenson,	1911
FRED M. WARNER, GOVERNOR OF THE STATE,	*Ex Officio.*
JONATHAN L. SNYDER, PRESIDENT OF THE COLLEGE,	*Ex Officio.*

A. M. BROWN, Agricultural College, Secretary.
B. F. DAVIS, Lansing, Treasurer.

STANDING COMMITTEES.

The President of the Board is *ex-officio* a member of each of the Standing Committees.

BOTANY AND HORTICULTURE,	R. D. Graham, H. F. Buskirk.
BUILDINGS AND COLLEGE PROPERTY.	A. P. Bliss, W. H. Wallace.
CHEMICAL, PHYSICAL, BACTERIOLOGICAL AND OTHER DEPARTMENTS NOT OTHERWISE PROVIDED FOR,	A. P. Bliss, T. F. Marston.
EMPLOYES,	R. D. Graham, H. F. Buskirk, J. L. Snyder.
ENGLISH AND MATHEMATICS,	W. H. Wallace, T. F. Marston.
EXPERIMENT STATION,	H. F. Buskirk, A. P. Bliss.
FARM MANAGEMENT,	T. F. Marston, R. D. Graham.
FINANCE,	R. D. Graham, A. P. Bliss.
FORESTRY,	A. P. Bliss, H. F. Buskirk.
FARMERS' INSTITUTES,	T. F. Marston, R. D. Graham.
LAND GRANT,	H. F. Buskirk, W. H. Wallace.
LIBRARY,	W. H. Wallace, A. P. Bliss.
MECHANICAL DEPARTMENT,	W. H. Wallace, R. D. Graham.
MILITARY AND ATHLETIC,	T. F. Marston, W. H. Wallace.
WOMEN'S DEPARTMENT,	H. F. Buskirk, T. F. Marston.

DEPARTMENT REPORTS.

REPORT OF THE PRESIDENT.

To the Honorable State Board of Agriculture:

I herewith submit my report as president of the college under your control for the year ending June 30, 1906.

The constitution of the State of Michigan, as revised in the year 1850, made provision for the establishing of a State Agricultural College. This provision in the state constitution was carried into effect by the state legislature in 1855. The sum of $56,320 resulting from the sales of salt-spring and swamp land grants was set apart by the legislature to be used in the purchase of a farm and the erection of buildings. A tract of 676 acres of uncleared land, located three miles east of the state capital, was purchased, four brick residences, a barn, a dormitory and a recitation building were erected, and the college was opened for students with appropriate exercises on May 13, 1857.

By the act of 1855 the college was placed in control of the State Board of Education. The State Board of Agriculture was created and placed in charge of the college by the legislature in 1861. This board consisted of six members appointed by the governor and confirmed by the senate. The appointments were so arranged that two members retire each two years. The legislature of 1905 added one member to the board. This member is appointed in the same manner and for the same length of term as the other members, but must be a resident of the "northern peninsula" of the state. The governor of the state and the president of the college are *ex officio* members of the board.

In 1862 congress appropriated land for the maintenance by the several states of "Colleges of Agriculture and the Mechanic Arts." The state of Michigan by accepting this act came into the possession of 240,000 acres of land. Happily, the provision of the congressional act, commonly termed the "Morrill Act," as to the type of education to be fostered and maintained, coincided almost identically, with the exception of mechanic arts, with the course of instruction as already given in the Michigan Agricultural College. The character of the institution has become more firmly fixed by the provisions of the various acts of congress. The Morrill act states that:

> "The leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The act of 1887, called the Hatch act, appropriates $15,000 annually for each experiment station, and states that it is—

"In order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science * * * ."

The act of 1890, usually called the second Morrill act, and granting to the college $25,000 annually, stipulates that it shall—

"Be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special application to the industries of life, and to the facilities for such instruction."

The act of 1906, which we trust may always be known as the Adams act, grants additional aid to the experiment stations—$5,000 the first year, with an increase of $2,000 each succeeding year until the total amounts to $30,000 per annum. The provisions of this act lay emphasis upon research work.

This college, in conformity with these acts as well as by direction of the various state acts of Michigan, offers instruction along the following lines: Agriculture—including horticulture and foresty, engineering, and home economics. This work is preceded and supplemented by such other studies in science, art, history, and literature, as will tend to develop men and women of strong character, cultured minds, and refined manners.

The college also offers during the winter months practical short courses in the various phases of agriculture for young farmers who are not able to enter upon one of the long courses.

The college has graduated with the degree of Bachelor of Science 1,218 persons, and more than six thousand have here received instruction for a longer or shorter period of time. During its history the institution has conferred advanced degrees as follows:

Master of Science, 106.
Master of Agriculture, 12.
Master of Horticulture, 3.
Doctor of Science, 4.
Doctor of Laws, 3.

The following table shows the attendance at the college during the last ten years; also the number of graduates by years:

Year.	Entering class.	Short courses.	Total attendance.	Graduates.
1896	108		393	28
1897	135	65	467	28
1898	244	71	528	27
1899	293	71	627	29
1900	250	91	652	23
1901	271	94	689	39
1902	349	148	854	59
1903	377	137	917	61
1904	351	162	1,009	55
1905	290	184	950	72

Summary of enrollment during the past year.

	Agriculture.	Mechanical.	Women's.	Forestry.	Totals.
Post graduates	3	.....	.....	.....	3
Class of '06	15	44	17	1	77
Class of '07	41	59	23	5	128
Class of '08	36	71	25	3	135
Class of '09	58	117	27	7	209
Sub-freshmen	31	73	24	6	134
Special students	18	22	45	.....	85

	Engineering.	Cheese.	General Agricult'l	Creamery.	Fruit.				
Special course students	7	13	94	57	13	177	7	.....	184
Totals						379	393	161	22	955
Deduct names repeated						.....	.....	.....	.....	5
Final total						.....	.....	.....	.....	950

The faculty of instruction at the present time numbers 73 persons, and the number of other regular employés of the college, not counting day laborers, is 14. This corps of workers is organized as follows:

FACULTY DEPARTMENTS.

President's Office:

J. L. Snyder, A. M., Ph. D., President.
B. A. Faunce, Clerk.
Elida Yakeley, Secretary.

Secretary's Office:

A. M. Brown, A. B., Secretary of the State Board of Agriculture.
Fred C. Kenney, Cashier.
Cowan H. McGugan, Bookkeeper.
S. Alice Earl, Clerk.

Agricultural Department:

R. S. Shaw, B. S. A., Professor.
Jos. A. Jeffery, B. S. A., Professor of Agronomy.
A. C. Anderson, B. S., Instructor in Animal Husbandry.
H. W. Norton, B. S., Instructor in Animal Husbandry.
F. O. Foster, B. S., Instructor in Dairying.
L. B. McWethy, B. S., Instructor in Agriculture.
C. D. Fick, Foreman of the College Farm.
Bertha Marshall, Clerk of the Farm Department.

Bacteriological Department:

Chas. E. Marshall, Ph. D., Professor.
Walter G. Sackett, B. S., Instructor.
Mary Wetmore, M. D., Instructor.
L. D. Bushnell, B. S., Assistant.
H. Foley Tuttle, B. S., Assistant.

Botanical Department:

Wm. J. Beal, Ph. D., D. Sc., Professor.
J. B. Dandeno, Ph. D., Assistant Professor.
Ellen B. Bach, A. M., Instructor.

Chemical Department:

Frank S. Kedzie, M. S., Professor.
Harry S. Reed, Instructor.
F. I. Rittenour, B. S., Instructor.
C. H. Swanger, B. S., Instructor.
E. A. Boyer, Instructor.
E. L. Larison, M. E., Instructor.

Drawing Department:

W. S. Holdsworth, M. S., Professor.
Caroline L. Holt, Instructor.
Chace Newman, Instructor in Mechanical Drawing.
H. G. Walker, B. S., Instructor in Mechanical Drawing.

Department of Physics and Electrical Engineering:

A. R. Sawyer, B. S., E. E., Professor of Physics and Electrical Engineering.
H. L. Curtis, A. M., Instructor.
O. W. Burk, B. S., Instructor.

Department of Physical Culture:

C. L. Brewer, Director.

English Department:

Howard Edwards, A. M., LL. D., Professor.
E. S. King, Assistant Professor.
G. L. Stevens, A. B., Lit. B., Instructor.
Bertha M. Wellman, B. S., B. Pd., Instructor.
Norma Lucile Gilchrist, A. B., Instructor.
Bessie K. Paddock, B. S., Instructor.

Forestry Department:

E. E. Bogue, M. S., A. M., Professor.

Horticultural Department:

S. W. Fletcher, M. S., Ph. D., Professor.
Thomas Gunson, Instructor and Superintendent of the Grounds.
C. A. McCue, B. S., Instructor.
A. R. Kohler, B. S., Instructor.
Chas. Davis, Foreman of the Grounds.

History and Political Economy Department:

W. O. Hedrick, M. S., Professor.
E. H. Ryder, A. M., Instructor.

Institutes and Nursery Inspection:

L. R. Taft, M. S., Superintendent.

Library Department:

Linda E. Landon, Librarian.
Cora Feldcamp, B. S., Assistant Librarian.

Mathematical Department:

H. K. Vedder, C. E., Professor of Mathematics and Civil Engineering.
Warren Babcock, B. S., Associate Professor of Mathematics and Secretary of the Faculty.
Samuel C. Hadden, B. S., Instructor in Civil Engineering.
Sherwood Hinds, B. S., Instructor in Mathematics and Civil Engineering.
Carl Gunderson, A. M., Ph. D., Instructor in Mathematics.
A. E. Jones, A. B., Instructor in Mathematics.
A. R. Alger, B. S., Instructor in Mathematics.
Glenn James, A. B., Instructor in Mathematics.

Mechanical Engineering Department:

Chas. L. Weil, B. S., Director and Professor of Mechanical Engineering.
W. W. Wells, B. S., Instructor.
R. Rosenstengel, B. S., Instructor.
O. N. Blair, B. S., Instructor.
W. S. Leonard, Instructor in Machine Design.
A. T. Krentel, Foreman of the Wood Shop.
E. C. Baker, Foreman of the Foundry.
Clara B. Purcell, Clerk.

Military Department:

Capt. F. W. Fuger, B. S., U. S. A., Commandant.

Veterinary Department:

Geo. A. Waterman, B. S., Professor.

Women's Department:

Maude Gilchrist, B. S., Dean.
Jennie L. K. Haner, Instructor in Domestic Art.
Rachel H. Colwell, A. M., Instructor in Domestic Science.
Sarah B. S. Avery, Instructor in Physical Culture.
Louise Freyhofer, B. S., Instructor in Music.
Bessie Bemis, B. S., Instructor in Domestic Science.
Annie L. Robinson, Instructor in Domestic Art.

Zoological Department:

Walter B. Barrows, B. S., Professor of Zoology and Physiology, and Curator of the General Museum.
R. H. Pettit, B. S. A., Instructor in Zoology and Entomologist of the Experiment Station.
J. J. Myers, B. S., Instructor in Zoology.

Miscellaneous:

C. D. Smith, M. S., Director of the Experiment Station, Dean of the Short Courses, and College Extension Lecturer.
E. A. Bowd, College Architect.
L. T. Newell, Engineer.
Edward Gibbons, Plumber.
Rowena Ketchum, Nurse in charge of College Hospital.

Instructors in Short Courses:

Walter E. Spreiter, Carpenter shop.
L. J. Smith, Blacksmith shop.
James Fisk, Blacksmith shop.
Franc Bennett, Accounts.
Roy E. Potts, Babcock testing and Lactometer.
A. J. Patten, Agricultural chemistry.
E. A. Edgerton, Creamery mechanics.
Jay Pullen, Buttermaking from whole milk.
Helmer Rabild, Buttermaking from gathered cream.

AGRICULTURAL EXPERIMENT STATION

OF THE

MICHIGAN AGRICULTURAL COLLEGE

(Under the control of the State Board of Agriculture.)

STATION COUNCIL.

Clinton D. Smith, M. S., Director

J. L. Snyder, M. A., Ph. D., Pres., *Ex-officio* Member
L. R. Taft, M. S., - Horticulturist
R. H. Pettit, B. S. A., - Entomologist
A. J. Patten, B. S., - Chemist
Chas. E. Marshall, Ph. D., Bacteriologist and Hygienist
R. S. Shaw, B. S. A., Experimenter with Live Stock
A. M. Brown, A. B., Sec. and Treas.

ADVISORY AND ASSISTANT STAFF.

S. W. Fletcher, M. S., Ph. D., Associate Horticulturist
Geo. A. Waterman, V. S., M. D. C., Consulting Veterinarian
Mrs. L. E. Landon, - Librarian
W. G. Sackett, B. S., Asst. in Bacteriology, and Hygiene
W. R. Wright, B. S., Asst. in Bacteriology and Hygiene
F. A. Wilken, In Charge of South Haven Sub-Station
Leo M. Geismar, Chatham, In Charge of U. P. Exp'm't Station

The work of the past year has been satisfactory in all respects. The number in attendance, while a little less than that of last year, mainly on account of lack of accommodations incident to the burning of Wells hall, have been of higher scholastic standing than those of any previous year. Of those entering the regular courses last year 57 per cent. were of college grade. It will be the policy in the future, as it has been in the past year, to advise very earnestly those of doubtful preparation to spend more time in the high school before attempting college work. The number of students enrolled this year as sub-freshmen and specials was 62 less than last year. This shows, as previously indicated, that the falling off in attendance was in those classes of persons least prepared to enter upon college work. No doubt many of those thus prevented from entering will find their way into this college either next year or later, and will then have such preparation as will enable them to do college work successfully. Largely due to the greater care exercised in the admission of students at the beginning of this year, only a very small number were compelled to drop out during the year from inability to do the work required. The complete statistics of the entering class are shown in the following tables:

Students entering during the year, not including those in special short courses.

Items.	Men.	Women.	Totals.
Number entering	219	71	290
Average age	19.6	19.4	19.5
Schools previously attended:			
High school	167	58	225
District school	21	5	26
College	11	2	13
State normal	2	1	3
Private School	18	5	23
Entered College on:			
High school diploma	88	32	120
Eighth-grade diploma	20	5	25
Teacher's certificate	3	3	6
Tenth-grade standings	47	19	66
College standings	10	2	12
State normal standings	1	1	2
Private school standings	11	4	15
Examination	24	2	26
Age	15	3	18
Support while here:			
Father	120	41	161
Self	61	17	78
Parents and self	24	7	31
Mother	4		4
Guardian	9	3	12
Other sources	1	3	4
Occupation of father:			
Banker		3	3
Carpenter	3	2	5
Clergyman	3	1	4
Contractor	3	1	4
Deceased	11	4	15
Druggist	2	3	5
Editor	2		2
Engineer (mechanical)	5	1	6
Engineer (civil)	4		4
Farmer	90	24	114
Lawyer	5		5
Lumberer	3	1	4
Manufacturer	4	2	6
Mechanic	5	3	8
Merchant	24	3	27
Miller	3		3
Mining	5		5
Miscellaneous	21	4	25
Not given	14	10	24
Physician	3	1	4
Railroad employee	6	1	7
Real estate	2	3	5
Teacher	3	4	7
Proposed occupation after leaving college:			
Engineer (agricultural)	1		1
Engineer (civil)	11		11
Engineer (electrical)	17		17
Engineer (mechanical)	35		35
Engineer (mining)	2		2
Farmer	26		26
Forester	6		6
Horticulturist	2		2
Mechanic	3		3
Miscellaneous	3	7	10
Teacher	7	20	27
Uncertain	106	44	150

Church membership.

Denominations.	Members.	Preference.	Total.
Baptist	9	14	23
Church of Christ	2	3	5
Church of Christ, Scientist	2	2	4
Congregational	18	23	41
Dutch Reformed	2		2
Episcopal	19	4	23
Evangelical	2	1	3
Friends	1	1	2
Jewish	2	1	3
Lutheran	3	1	4
Methodist Episcopal	31	40	71
Methodist Protestant	1		1
Moravian	1		1
No preference			45
Presbyterian	17	21	38
Presbyterian (United)	2		2
Roman Catholic	15	1	16
United Brethren	1	1	2
Unitarian	1		1
Universalist	1	2	3

Counties represented in the entering class.

Alger	1	Kalkaska	3
Allegan	6	Kalamazoo	5
Antrim	1	Kent	12
Arenac	2	Lapeer	1
Barry	4	Lenawee	12
Bay	4	Livingston	4
Benzie	2	Macomb	2
Berrien	6	Marquette	1
Branch	6	Midland	1
Calhoun	8	Missaukee	1
Cass	1	Montcalm	4
Charlevoix	1	Newaygo	3
Chippewa	4	Oakland	1
Clinton	8	Oceana	2
Dickinson	1	Ontonagon	1
Eaton	13	Osceola	2
Emmet	2	Ottawa	2
Genesee	9	Saginaw	6
Grand Traverse	2	Schoolcraft	1
Hillsdale	4	Shiawassee	4
Houghton	4	St. Clair	5
Huron	3	St. Joseph	5
Ingham	45	Tuscola	3
Ionia	7	Van Buren	10
Iosco	1	Wayne	19
Isabella	2	Washtenaw	3
Jackson	6		

Other States represented.

Germany	1	New York	3
Illinois	4	Ohio	4
Indiana	2	Pennsylvania	4
Massachusetts	1	Russia	1
Minnesota	1	Wisconsin	1

Total 22

The baccalaureate sermon was delivered this year by the Rev. Robert W. McLaughlin, D. D., pastor of the Park Congregational Church, Grand Rapids. The commencement address was given by the Hon. Geo. H. Maxwell, editor of "Maxwell's Talisman" and chairman of the executive committee of the National Irrigation Association. In addition to the commencement oration, the class, as has been the custom for years, was represented by three speakers, one for each department. Mr. C. A. Wilson spoke on "The Farmer in Politics," Mr. J. R. Lambert took as his subject "Hydraulic Power Development," and Miss Alida Alexander read a paper on "Women's Influence in Public Affairs." The graduating class this year numbered seventy-four. The number graduated from the agricultural course was below the average on account of the change in entrance requirements when this class entered the college. The names and addresses of the class are shown in the following table:

AGRICULTURAL LABORATORY

Name.	Postoffice.	County.
Adams, Edwin H., *e*	Chesaning	Saginaw
Alexander, Alida, *w*	Geneva	Lenawee
Anderson, A. Crosby, *a*	Forestville	NEW YORK
Angell, Anna M., *w*	Agricultural College	Ingham
Armstrong, Scott, *e*	Hanover	Jackson
Barnett, Howard H., *e*	Pontiac	Oakland
Bates, Erastus N., *e*	Moline	Allegan
Bird, Ralph C., *e*	Milford	Oakland
Boomsliter, George P., *e*	Grand Haven	Ottawa
Boughton, Carl H., *e*	Traverse City	Grand Traverse
Bucknell, Howard C., *a*	Centerville	St. Joseph
Cameron, Arba H., *e*	Charlevoix	Charlevoix
Campbell, Flora L, *w*	Okemos	Ingham
Case, Florence, *w*	Berlin	WISCONSIN
Cavanagh, John G., *e*	Galt	Missaukee
Champe, Silas, *a*	Agricultural College	Ingham
Crosby, Henry H., *a*	Three Oaks	Berrien
Dorsey, Maxwell J., *a*	Dresden	OHIO
Flaconer, Archer E., *e*	Agricultural College	Ingham
Farley, Fred A, *a*	Almont	Lapeer
Farrand, Bell, *w*	Jackson	Jackson
Fisk, James E., *e*	Colling	Tuscola
Francis, Howard L., *e*	Charlevoix	Charlevoix
Freedman, Blanche, *w*	Lansing	Ingham
Gordon, Lawrence O., *e*	Muskegon	Muskegon
Graham, Ralph, *e*	Owosso	Shiawassee
Grover, Frank N., *e*	Alma	Gratiot
Hagadorn, Earl, *a*	Okemos	Ingham
Hebblewhite, Gilbert W., *e*	Armada	Macomb
Hebblewhite, Grace, *w*	Armada	Macomb
Hough, Walter K., *a*	Almont	Lapeer
Kedzie, Rosmond, *w*	Lansing	Ingham
Keech, Rollo E., *e*	Rockfort	Kent
Kendrick, Earl W., *e*	Reading	Hillsdale
Kingscott, Walter J., *m*	Manistee	Manistee
Lamb, Cass A., *e*	Washington	Macomb
Lambert, John R., *e*	Niles	Berrien
Langeler, Marinus B., *e*	Grand Rapids	Kent
Lawrence, Carrie, *w*	Hudson	Lenawee
Linkletter, Frank D. *a*	Benzonia	Benzie
Liverance, Frank, *e*	Lansing	Ingham
Locke, Franklin, *e*	Caro	Tuscola
Markham, Allan, *e*	Owosso	Shiawassee
Masterbrook, Henry J., *e*	Grandville	Kent
Matthews, Mildred M., *w*	Lansing	Ingham
Morgan, William E, *e*	Detroit	Wayne
Neilson, Wilhelm, *e*	Howell	Livingston
Northrop, Zae, *w*	Thompsonville	Benzie
Peters, Gertrude, *w*	Springport	Jackson
Phippeny, Max, *m*	Manistique	Schoolcraft
Poole, John E., *e*	Mackinac Island	Mackinac
Potts, Ray G., *a*	Washington	Macomb
Potts, Roy C., *a*	Washington	Macomb
Ranger, Karl F., *e*	Battle Creek	Calhoun
Rasmussen, Rasmus, *e*	Ludington	Mason
Robinson, Lulu B., *w*	Lansing	Ingham
Robson, Albert, *f*	Ilion	NEW YORK
Salisbury, Hugh C., *e*	Hart	Oceana
Sanborn, Leslie M., *e*	Flushing	Genesee
Skeels, Dora, *w*	Harriette	Wexford
Smith, Leslie J., *e*	Petoskey	Emmet
Smith, Ernest F., *e*	Marshall	Calhoun
Spencer, Louis M., *e*	Nunica	Ottawa
Stanton, Walter E., *a*	Lacey	Barry
Stevens, Kinton B., *e*	Santa Barbara	CALIFORNIA
Strand, W. C., *e*	Otsego	Allegan
Taylor, Jennie, *w*	Eaton Rapids	Eaton
Taylor, Joseph H., *e*	Almont	Lapeer
Wilson, C. A., *a*	Clifford	Lapeer
Wilson, William E., *e*	Bay City	Bay
Wilson, William P., *e*	Detroit	Wayne

Master of Science.

Name	Postoffice	County.
Spragg, Frank A., B. S.	Denton	MONTANA.
Woodbury, Charles G., B. S.	Lansing	Ingham.

CHANGES IN THE FACULTY.

There are always a number of changes at the end of each year among the college instructors. This is due largely to the fact that the college cannot advance salaries for subordinate positions rapidly enough to meet the growth in experience and attainments of the young men and young women holding instructorships. In other words, they rapidly outgrow these positions. So many changes are to be deplored; but it is solely a business proposition. By a greater outlay for salaries a large percentage of these changes would be avoided. Such a policy, however, would soon reach a limit. A good six-hundred-dollar instructor will in five years, and often before that time, demand twelve hundred; and in another five years will be ready for the maximum salary. If the salary were advanced to the maximum it would not make it possible to create a position of first-grade for such a man, and it would be unfair to full professors at the heads of departments to pay the maximum salary to subordinates who carry very little responsibility outside of their teaching.

The college has been fortunate in recent years in retaining the services of its full professors. Notwithstanding the addition of new departments in recent years, the average length of service in this college of those now holding full professorships is more than eleven years. It seems to me a remarkable fact that pallid death has rapped so few times at the doors of the faculty. So far as I have been able to learn, there has not been a death among the active teaching force during the forty-nine years of its existence.

It is with regret that I report the resignation at the close of this year of Dr. Howard Edwards, professor of English literature and modern languages. Dr. Edwards has given to this college sixteen years of most faithful and efficient service. He has been an exceptionally popular and successful teacher. His breadth of scholarship and sterling qualities of character made his service to the college of a very high order. He leaves this institution to accept the presidency of the Rhode Island College of Agriculture and Mechanic Arts.

COURSES OF STUDY.

The only change of importance made in the course of study during the year was the addition of elective work in electrical engineering in the junior and senior years of the engineering course. The college now offers an engineering course which is the same for all students during the freshman and sophomore years. It endeavors during these years to give thorough training in the basic subjects, accompanied with daily practical work in the shop and drafting room. At the beginning of the junior year students are given the opportunity to elect their work either in

mechanical, civil or electrical engineering, or under certain limitations they may elect subjects in any of these courses.

The faculty has discussed very thoroughly during the year our courses for agriculture and women students. The opinion of the faculty is practically unanimous that this college should retain in its courses certain general culture studies, such as English, history, political economy, etc. It does not look with favor upon the free elective system adopted by some distinguished agricultural schools, which makes it possible for a student to gain the bachelor's degree without mathematics beyond the rudiments of arithmetic, or without pursuing even to a limited extent those culture studies which give to the student a degree of ease in expressing his own thoughts, and a fair appreciation of the great fields of knowledge that lie outside his own narrow profession.

This does not mean that our courses will not be changed. They have undergone many changes in the past few years, and will be changed to an even greater extent in the near future. As a field of knowledge in agriculture and home economics broadens our courses must keep pace with the trend of development in these lines. Much that was considered essential a few years ago has already, or will soon, give way to something better; but the preparation of young men and women for their places as members of society, as responsible citizens, as future leaders in their own communities, will not be lost sight of in the effort to make them exceptionally capable in their chosen lines of work.

IMPROVEMENTS.

The physical equipment of the college during the past decade has been very much enlarged and improved. The following may be noted:

The Women's Building, 1899-1900, costing	$95,000
Dairy building, 1900	15,000
Barn, 1900	4,000
Bacteriological laboratory, 1902	27,000
Waiting room and post office, 1902	1,700
Bath house, 1903	17,000
Athletic field and improvements	2,500
Right of way for railroad	1,000
Street car track on campus	360
Three new wells	1,800
Central heating and lighting plant	140,000
Wells hall	55,000
Barns	11,000
Poultry plant	2,000
Engineering building	100,000
Total	$473,360

CENTRAL HEATING AND LIGHTING PLANT.

We have just completed the central heating and lighting system. The cost has been about $140,000. The building which houses the equipment

is located about one hundred feet south of the veterinary laboratory. From this building tunnels radiate to all the large buildings on the grounds. These tunnels are constructed of concrete, and are six feet wide and six and one-half feet high. Their entire length is nearly three-quarters of a mile. In them are placed steam pipes for heating purposes and the electric lighting wires; and they will also soon contain the telephone wires. The building proper is 100 by 70 feet. The smokestack is 125 feet high, 6 feet in diameter inside, and 10 feet in external diameter at the base. It is built of vitrified hollow blocks. There are four 150-H. P. Scotch marine boilers equipped with the Jones underfeed stokers. There are two 125-kilowatt dynamos. These are duplicates, either one of which is ample to carry the entire load. A smaller 45-kilowatt dynamo carries the day load. The entire plant represents engineering skill of high grade and will be of great educational value to all our engineering students. A coal shed of 1,800 tons capacity is located back of the boiler house. The coal is transferred to hoppers automatically. The ashes drop to a car placed in a tunnel in front of the boilers and are likewise handled automatically, or without the use of the shovel. The entire plant is very satisfactory. The absence of smoke from it is very much appreciated by the dwellers on the campus.

WELLS HALL.

The new Wells Hall which will take the place of the one destroyed by fire on February 11, 1905, will be ready for occupancy at the opening of the next school year. This building is erected in six compartments or wards, with fire proof walls between, and with an outside entrance for each. Every floor in each ward contains five rooms and a toilet room, making accommodiations in the entire building for 156 students Of the rooms, sixty six are double rooms, 15 by 15 feet, with a large cloak room, and twenty-four are single rooms. All are well lighted and each is ventilated with a separate flue. The attic of each ward will furnish very pleasant quarters for a literary society. — Six in all. The basement is high and well lighted. It contains a large kitchen with serving rooms, pantries, storage rooms, dining rooms with a seating capacity for three hundred, besides toilet rooms and six fine living rooms for the help. The finishings are Georgia pine, the floors maple and the stairways oak. The basement is stone, walls pressed brick, and roof slate. Excellent construction throughout, cost fifty five thousand.

BARNS.

The last legislature appropriated $10,000 for the erection of a new barn and for the moving and repairing of the old ones. This work will be completed during the coming summer and will not only add greatly to the appearance of the buildings and yards but will also afford commodious quarters for the housing of stock and farm machinery.

POULTRY PLANT.

In the bill passed by the last legislature appropriating $20,000 for experimental work in live stock it was provided that $2,000 of this sum

should be expended in erecting and equipping a poultry plant. In carrying out this project a site was selected on the high ground about twenty-five rods east of the farm house, and the following buildings were erected: A winter laying house 15 by 84 feet, a combined incubator cellar and laboratory, and three portable gasoline colony brooders. A fattening shed and several small model poultry houses are yet to be erected.

ENGINEERING BUILDING.

The new building which is now under construction but which will not be completed before next June will be the finest building on the grounds. The material used is stone for the basement story and paving brick above. The interior is mill proof construction with maple floors and oak finishings. It is 182 by 84 feet in size with an extension on the rear of 47 by 37 feet. The basement is nearly all above ground and will answer splendidly for laboratory purposes. The fifth story, counting the basement as the first, will be used mainly for drawing rooms, on account of the excellent lighting made possible by the skylights in the roof. The building will contain more than forty laboratories and recitation rooms, besides offices, storage, toilet, and other small rooms. It will be occupied by the engineering—mechanical, civil and electrical,—the drawing and the physics departments, and will be fully occupied from the start. This building is located between Wells hall and the present mechanical building, and will cost about $100,000.

THE CAMPUS.

The campus is undergoing some slight changes from time to time. The board employed the noted landscape architect, Mr. Simons, of Chicago, to visit the college last spring and spend two or three days in looking over the campus and in consulting with the men now in charge. This was done not with a view to any radical changes but rather, if possible, to settle upon some plan with reference to the location of buildings in the future. He approved slight changes in a few of the old roads and the removal of some unimportant trees. His suggestion that no new buildings be placed on the inner campus has been approved by the board and will, no doubt, be adhered to in the future. If this policy is followed, the M. A. C. campus will go down to future generations as "a thing of beauty and a joy forever." His other important recommendation was that the new auditorium and administration building which we hope to erect in the near future be located near the public highway northeast of the horticultural building. This building will very naturally be the center of campus life, and the wisdom of placing it on the edge of the campus is doubted by some. As College hall has become antiquated and the outer walls are badly cracked and growing worse, it has been suggested that it should be removed and the new building placed on this site. These and similar matters are receiving careful consideration, with the hope that serious mistakes may be avoided. On such questions every one has an opinion, but the final decision should be left to the expert. Here, if anywhere, special training and experience counts, and should not be set aside for preferences that may be largely matters of sentiment.

The act approved February 12, 1855, establishing the Michigan Agricultural College provided among other things that the secretary of the college—

"Shall keep a careful account with each field, in connection with a plan of the farming lands or farm, exhibiting the position of each, in which shall be shown the manner and cost of preparing the ground, the kind of crop, time of planting or sewing, the after condition, the time and manner of harvesting, the labor devoted to each process, and its cost price, with the cost of preparing the matured crop for market, and the price for which it was sold * * * and the said record shall, at all reasonable hours, be open to the inspection of any citizen of this state."

Experimental work in agriculture, under the operation of this act, began with the opening of the college and has continued without a break to the present time. When the college was reorganized in 1861 the work of experimentation was made even stronger. The secretary of the board of agriculture was instructed to gather information from all sources and disseminate it among the farmers of the state. Section 9 of this act authorizes him to distribute seeds, plants, trees and shrubs to those farmers who would agree to cultivate them properly and return to the secretary a portion of the products thereof, with a full statement of the mode of cultivation, and such other information as might be necessary to ascertain their value for general cultivation in the state. This information was to be given to the newspapers of the state.

It does not seem from the reports that there were many results at that time from the co-operative work with farmers; but there was much valuable research work done by the various professors in the early years of the college. Manly Miles was connected with the Institution as a professor from 1861 to 1875. Much of his work was at least a quarter of a century ahead of his time. His experiments in lamb feeding in 1866 would be a credit to any experiment station at the present day. Who was Doctor Miles? — Dr. Burrell, vice president of the university of Illinois, in speaking of the call extended by that institution to Dr. Miles in 1870 says, "No one else in America at this time enjoyed anything comparable with Dr. Miles in the public estimation of competency to give instruction in scientific agriculture. It was he who had been called the only professor of the subject in the country."

In 1885 the legislature of Michigan passed an act providing for the dissemination of the results of experiments made at the college among the people of the state, in bulletin form. The professors of chemistry, botany, zoology, agriculture, horticulture and veterinary science, were required to prepare at least two articles each year which were to be sent to the press of the state. The expense for printing these bulletins, postage, etc., was to be paid out of the general funds of the state.

This is a very brief and meager history of the legal status of the work in experimentation carried on at the college before the passage of the United States act of 1887. This act, usually spoken of as the Hatch act, grants annually $15,000 from government funds to the experiment station in each state. In Michigan, by legislative enactment, the state experiment station is a department of the State Agricultural College.

The national congress at its last session granted additional aid to the state experiment stations. The Adams act gives each station $5,000 for the year 1906, with an increase of $2,000 each year for five years. At the end of that time, and thereafter, the appropriation by the general government for each experiment station will be $30,000 per annum.

The one who deserves special credit for the latter act was the late Hon. H. C. Adams, a member of congress from Wisconsin. To him more than to any other man, even more than to all other men not officially concerned in its passage, is due the credit. As a member of the executive committee of the National Association of Agricultural Colleges and Experiment Stations, I have visited Washington many times with other members of committee during the past three years in behalf of this legislation. We always found Mr. Adams at the helm, ready to confer and advise. He was a man of most remarkable energy, sane and sensible at all times. He threw all his energy and even his very life into the passage of this act. His untimely death at the Auditorium Hotel, Chicago, on July 9th, has brought universal sorrow to all friends of scientific and practical agriculture.

The state of Michigan has in recent years supplemented the funds received from the general government to the extent of about $9,000 annually. The northern peninsula and South Haven sub-stations are supported entirely by the college. The expense of publishing the station bulletins is annually about $4,000 and is borne by the college. During the past year the following bulletins were issued and mailed to our regular bulletin list, which now numbers nearly 40,000 farmers of Michigan:

No. 232, Fertilizer Analysis, Station Chemist A. J. Patten.

No. 233, Insects of the Garden Entomologist R. H. Pettit.

No. 234, Feeding Dairy Cows, Director C. D. Smith.

No. 235, Succotash as a Soiling Crop, Professor R. S. Shaw.

No. 236, Spraying for Potato Blight, Assistant C. A. McCue.

No. 237, Digester Tankage for Swine, Professor R. S. Shaw.

No. 238, First Annual Report of the Grade Dairy Herd, Professor R. S. Shaw and A. C. Anderson.

Special 34, Corn Improvement, Professor J. A. Jeffery.

Special 35, Report of the South Haven Sub-station, Professor L. R. Taft and T. A. Farrand.

These bulletins are, of course, not all read by all farmers who receive them. A farmer engaged entirely in fruit culture is not likely to take much interest in a dairy bulletin; but that a great many of these bulletins are read intelligently and the advice therein given followed, is evident to anyone who attends farmers' institutes or mingles in any way with the farmers of the State. With experiment station bulletins to be had for the asking, with farmers' institutes brought to his very door, and with an intelligent agricultural press available at a trifling expense, there seems to be no necessity for any farmer to remain ignorant of the most advanced methods of agriculture.

FARMER'S INSTITUTES.

On May 7, 1875, Dr. Kedzie offered the following resolutions in a meeting of the college faculty, and they were unanimously adopted:

"Resolved, That a committee of three be appointed by the president to draw up a scheme for a series of farmers' institutes to be held in different parts of the state during the next winter, including in the exercises of such institutes lectures and essays by members of the faculty; that the several members of the State Board of Agriculture and leading farmers residing in the vicinity of the place of holding such institutes, be respectfully and earnestly requested to participate in the exercises by lectures, essays, and discussion.

"Resolved, That said committee be instructed to confer with the State Board of Agriculture, at its next meeting, to make all necessary arrangements for inaugurating and carrying out such series of farmers' institutes."

Dr. Kedzie, Dr. Beal and Prof. R. C. Carpenter, representing the faculty, presented to the board on June 1st a memorial requesting the board to adopt a regular system for the holding of six farmers' institutes each winter in the older settled portions of the state. This plan was adopted by the board, and during the month of January, 1876, institutes were held in Allegan, Armada, Decatur, Rochester, Adrian and Coldwater. These institutes were the first held in this state, and as far as we know, the first held in this country under the authority of a state board or college faculty. The reports show that the college received aid from the legislature from time to time for the purpose of carrying on these institutes. The demand from the different sections of the state for institutes finally became so urgent that in 1897 the legislature passed an act authorizing our present institute system and made an annual appropriation of $5,000 for carrying it forward. When the legislature, in 1901, granted to the college a mill tax, it was stipulated that the college should carry on the farmers' institutes, expending for this purpose not less than $7,500 annually. This sum now seems inadequate, and provision should be made for a substantial increase,

Under the present law institute societies are formed in each county and upon their initiative one two-day institute, and where convenient a few one-day meetings, are held in each county. Speakers are provided by the state, under direction of the college, for each of these meetings. Last year there were held 74 two-day institutes, with a total attendance of 65,285; 257 one-day meetings, with a total attendance of 57,148; making a total attendance for the series of 122,433.

In addition to these meetings a series of "railroad institutes" was held during the month of April in co-operation with the Lake Shore & Michigan Southern and the Michigan Central railroads, thirty being held upon the former line and seventeen upon the latter. Each road furnished a special train consisting of two passenger coaches and one baggage car, and stops of from one hour to an hour and a quarter were made at each meeting. These had been well advertised before hand, and the two passenger coaches were usually filled with an audience assembled to hear a lecture or two by members of the college faculty and occasional addresses by others who accompanied the trains for a part of the series. The subject generally presented was that of corn selection and culture, and after the addresses the audience adjourned to the baggage car to inspect the sample ears of various varieties exhibited in illustration of the lectures. These traveling institutes were accompanied by several newspaper reporters, railway officials, and representatives of leading farm journals. Governor

Warner was with the "corn train" one day and made several addresses. The total number of these meetings was forty-nine, and the aggregate attendance was 3,962. The success and interest of this series suggests the question—may it not be that the further development of institute work should lie along this line? Would it be possible to hold institutes during the fall and take from county to county several car loads of live stock, fruits, etc., for demonstration purposes?

The greatest problem at present in institute work is to find competent speakers. These institutes are held during the winter at the same time that the short courses are in progress at the college. This makes it practically impossible for the college professors to render much assistance to the institute work. The superintendent of institutes is compelled to select his speakers largely from the practical farmers of the state. Such men are not always to be had. Many of them cannot leave their business and others do not regard the remuneration sufficient to warrant them in turning over their own affairs to hired men. Traveling from place to place in disagreeable weather and often with very poor hotel accommodations makes the task exceedingly onerous to some. A few loyal and able workers have remained in the ranks year after year, but as they drop out it seems more difficult each year to fill their places. The public is becoming better educated in agricultural matters every year and demands a higher grade of ability in institute workers. To meet this demand for a higher quality of instruction, is a problem. May it not be necessary in the near future to educate men specially for this work and to arrange the institutes throughout the state in such a way as to afford these workers almost continuous employment? The summer months could be spent in visiting and rendering assistance to the cheese factories and dairies of the state, and also to the individual farmers engaged in dairying. In the early fall attention could be given to the fruit interests, and in the later fall to institute work in the upper peninsula. The winter could be devoted to institute work in the state proper and the spring to corn trains and such other work as would from time to time develop. Men in such work could no doubt publish from time to time descriptions of model dairies, dairy barns, fruit farms and advanced methods in various lines of farming, such as may be seen in the different parts of the state. Could not a few well trained men render the farming interest of the state a great service by some such method?

NEEDS OF THE COLLEGE.

The growth in attendance during the past few years has very much overcrowded our class rooms and laboratories. The engineering building, which is now under construction, will give some relief, but the need of a similar building for the agricultural department is very pressing. An old barn has been converted into class rooms, so great is the demand for room. We have for years suffered for lack of an auditorium. Our present chapel room has seating capacity for about one-fourth of our students. When a large meeting is to be held chairs must be placed in the armory. This is a great inconvenience and interferes very much with the work of

the military department. It is almost impossible to call the student body together for counsel or religious exercises.

Our library is not fire-proof and is very much overcrowded. Book shelves have been placed in many of the alcoves and the available room for students is not only very limited but is growing less each year.

The college has no gymnasium for young men. Formerly the armory was used for this purpose, but with the large number at present in military drill, there is practically neither time nor space for gymnastic work.

The additional wing should be added to our woman's building, and more space should be provided for the department of botany. These are a few of the more pressing needs.

The agricultural building, the auditorium and the library should cost not less than one hundred thousand dollars each. Another hundred thousand could be used without extravagance in providing the other buildings which are needed.

SEMI-CENTENNIAL.

The college will celebrate its fiftieth anniversary during the last week of next May. The exact date is the 13th, but as this seems a little too early for comfort it has been decided to hold the exercises from May 28 to 31. Measures have already been taken which will provide for the celebration of this event in a most fitting and dignified manner. It is greatly desired that all former students and alumni be present on this occasion. President Roosevelt has consented to be present on May 31.

Respectfully submitted,

J. L. SNYDER.

APPENDIX.

Income of the State Agricultural College from all outside sources from the date of its foundation to the present time.

Year.	From State Legislature.			From U. S. Congress.			Total.
	For cur'ent expenses.	For special purposes.	Land sales, salt spring and sw'mp l'nd grants.	Morrill act of 1862, interest from land grant and tr'sp's.	Hatch act of 1887, experime't station.	Morrill act of 1890, supplem't'y endowm't.	
1855			$56,320 00				$56,320 00
1856							
1857	$40,000 00						40,000 00
1858							
1859	37,500 00						37,500 00
1860							
1861	6,500 00		152 25				6,652 25
1862	10,000 00		218 97				10,218 97
1863	9,000 00		407 80				9,407 80
1864	9,000 00		726 09				9,726 09
1865	15,000 00		1,156 61				16,156 61
1866	15,000 00		1,094 27				16 094 27
1867	20,000 00		7,608 38				27,608 38
1868	20,000 00		592 49				20,592 49
1869	20,000 00	$30,000 00	17,559 00	$58 96			67,617 96
1870	20,000 00		1,320 02	2,720 93			24,040 95
1871	18,250 00	10,500 00	4,135 72	3,785 54			36,671 26
1872	18,250 00	3,000 00	217 05	7,175 65			28,642 70
1873	21,796 00	15,602 00	10 13	11,059 06			48,467 19
1874	13,000 00	15,602 00	150 13	14,061 98			42,814 11
1875	7,638 00	7,755 50	144 53	14,446 14			29,984 17
1876	7,638 00	6,755 50	1,773 09	16,830 17			32,996 76
1877	6,150 00	30 686 80	979 66	15.182 86			52 988 72
1878	6,150 00	5,686 80	826 60	15,807 09			28,470 49
1879	4,971 80	16,068 32	712 22	16,978 22			38,730 56
1880	4.971 80	7,068 32	797 55	17,837 24			30,674 91
1881	7.249 00	43,720 50	461 95	20,935 25			72,366 70
1882	7.249 00	8,945 50	358 46	22.507 45			39.060 41
1883	8.385 00	23,793 00	391 95	30,749 60			63,319 55
1884	8,385 00	10,526 00	1,259 90	27,909 72			48.080 62
1885		35,103 00	187 50	29.770 40			65,060 90
1886		22,617 00		30,461 04			53,078 04
1887		*44,040 00	198 20	†24,611 37			68,849 57
1888		30,752 50	144 20	32,406 60	$15,000 00		78,303 30
1889		*20,973 00	10 50	31,322 69	15,000 00		67,306 19
1890		*27,172 00	238 50	32,360 64	15,000 00	$15,000 00	89,771 14
1891		22,947 50	37 38	34,750 54	15,000 00	16,000 00	88,735 42
1892		22,947 50	137 38	34,948 12	15,000 00	17,000 00	90,033 00
1893		18,862 50	10 50	37,927 04	15,000 00	18,000 00	89,800 04
1894		18,862 50	433 59	44,527 26	15,000 00	19,000 00	97,823 35
1895		‡19,000 00	10 50	45,301 85	15,000 00	20,000 00	99.312 35
1896		‡16,000 00		43.886 40	15,000 00	21,000 00	95,886 40
1897		§17,700 00		43,779 54	15,000 00	22,000 00	98,479 54
1898		‖17,500 00		47,508 28	15,000 00	23,000 00	103,008 28
1899		¶8,750 00	705 00	52,526 11	15,000 00	24,000 00	100,981 11
1900		¶72,500 00	175 00	72,298 38	15,000 00	25,000 00	184,973 38
1901‡‡		¶72.500 00		63,976 79	15,000 00	25,000 00	176,476 79
1902	100,000 00	**1,000 00		64.081 81	15 000 00	25,000 00	205,081 81
1903	100,000 00	**1.000 00		65,573 90	15,000 00	25,000 00	206,573 90
1904	100,000 00	**1,000 00	61 19	67.312 37	15,000 00	25,000 00	208,373 56
1905	100,000 00	**1.000 00		72,035 32	15,000 00	25.090 00	213,035 32
1906	157,810 00	**1,000 00		70,286 56	15,000 00	25,000 00	269,096 56
Totals.	$919,893 60	$728,937 74	$101,723 66	$1,279,688 87	$285,000 00	$370,000 00	$3,685,243 87

*Including appropriation for weather service.
†October 1, 1886, to June 30, 1887, nine months.
‡Including $5,000 for institutes and $1.000 for weather service.
¶Including $5,500 for institutes and $1,000 for weather service.
‖Including $5,500 for institutes and $1,000 for weather service.
§Including $2,750 for institutes and $500 for weather service.
‡‡To June 30. **Weather service.

Statement of special appropriation account for fiscal year, July 1, 1904, to June 30, 1905.

Name of appropriation.	Receip s during fiscal year.		Balance of account June 30, 1905.	
	Total available.	Total expended.	Dr.	Cr.
Experiment Station	$20,407 11	$19,203 04		$1,204 07
Nursery License and Inspection	1,083 67	1,083 67		
Sundry Improvements	6,171 58	6,026 46		1,303 21
Power Plant				
Power House	4,917 55	4,917 55		
Extension Tunnels	3,570 77	*2,412 68		
Coal Shed	5,838 55	5,838 55		
Barns	5,000 00	5,512 35	$512 35	
Wells Hall	45,000 00	37,186 87		7,813 13
Electric Light and Power Plant	10,071 60	5,863 85		4,207 75
U. P. Exp. Station. Special	5,000 00	2,470 04		2,529 96
Live Stock, Special	5,047 35	5,019 14		28 21
Live Stock, Special Poultry	1,000 00	723 41		276 59
Live Stock, Special Poultry House	1,000 00	908 82		91 18
Engineering Building	10,000 00	8,566 34		1,433 66
Weather Bureau	1,027 44	1,011 42		16 02
Balance			18,391 43	
Total	$125,135 62	$106,744 19	$18,903 78	$18,903 78

*The balance from this account, $1,158.09, transferred to Sundry Improvements.

Current account July 1, 1905, to June 30, 1906.

On account of—	Dr. To disbursements.	Cr. By receipts.
U.S. Treasurer, 17th annual payment under act of congress of August 30, 1890		$25,000 00
State Treasurer, one-tenth mill tax		47,000 00
State Treas., interest on proceeds of sales of U. S. land grant		70,286 56
Salaries	$79,229 20	907 40
Farm department	10,718 33	7,539 76
Horticultural department	6,489 30	2,681 18
Mechanical department	7,120 35	1,961 53
Heating department	17,516 02	521 67
Cleaning department	2,070 31	277 29
Electric lighting department	5,748 58	2,379 39
Office	1,901 18	97 39
Advertising	2,241 14	34 13
M. A. C. Record	1,278 89	463 50
Special courses	4,455 38	1,570 51
Academic departments	17,374 12	5,121 14
Contingent building	23,407 39	23 266 94
Miscellaneous	2,742 61	4,347 06
Women's	2,420 47	1,127 50
Ice	246 25	249 62
Totals	$184,959 52	$194,832 37
Supplementary amounts:		
Bulletins	4,826 88	
Farmers' institutes	7,903 56	
South Haven experiment station	2,159 95	473 66
Upper Peninsula experiment station	2,645 13	462 93
Balance at beginning of period, July 1, 1905		12,708 38
Balance at close of period, June 30, 1906	5,982 30	
Total.	$208,477 34	$208,477 34

Experiment station account.

To disbursements	$8,203 04	
By receipts		$20,407 11
To Balance, June 30	$12,204 07	
Total	$20,407 11	$20,407 11

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